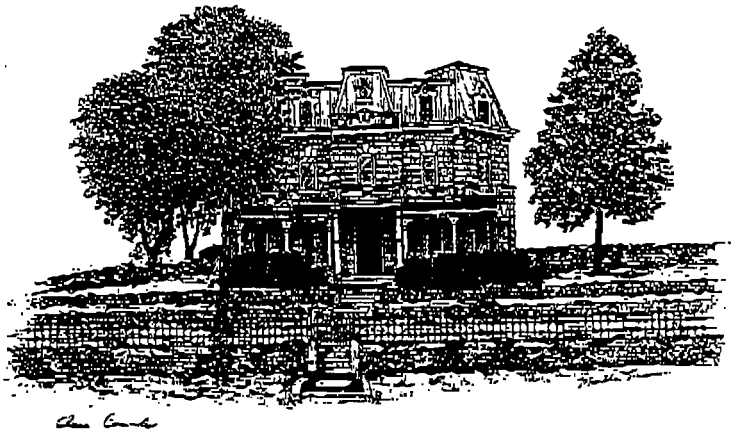


Tallgrass Prairie National Preserve

Office # 316-273-6034 Fax # 316-273-6099
Ranch Headquarters # 316-273-8494

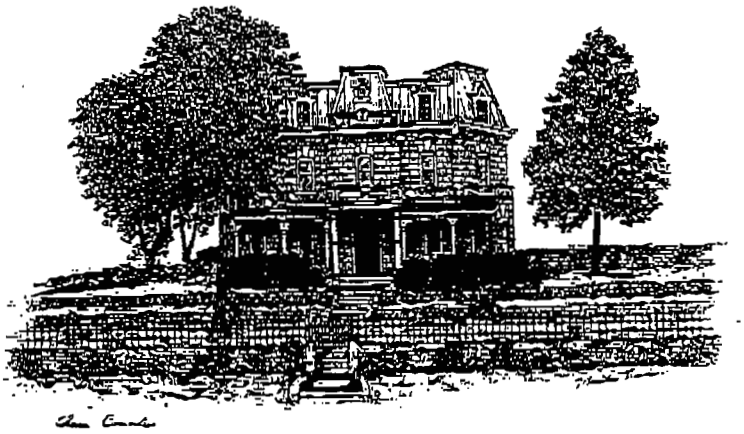
Flinthills
Adventure
X-press

To: Steve Cinamon Fax #: 402-221-3480

From: Steve Miller

No. of pages to follow: 6

Remarks: Following is what I faxed to Lisa / Mike concerning the Pre-Proposal. Hope you have a special and joyous holiday season.



Tallgrass Prairie National Preserve

Office # 316-273-6034 Fax # 316-273-6099
Ranch Headquarters # 316-273-8494

Flinthills
Adventure
X-press

To: Lisa / Mike Fax #: 417-732-7660

From: Steve Miller

No. of pages to follow: 5

Remarks: Per my phone conversation with Mike this afternoon following is my signed approval and suggested changes to the Re-Proposal. If you have questions or have problems reading my handwritting please call me. I will be in the office through Wednesday.

Happy Holidays.

Approvals

Superintendent, Arkansas Post National Memorial Date

Superintendent, Buffalo National River Date

Superintendent, Cuyahoga Valley National Recreation Area Date

Superintendent, Effigy Mounds National Monument Date

Superintendent, George Washington Carver National Monument Date

Superintendent, Lincoln Boyhood National Memorial Date

Superintendent, Herbert Hoover National Historic Site Date

Superintendent, Homestead National Monument of America Date

Superintendent, Hopewell Culture National Historic Park Date

Superintendent, Hot Springs National Park Date

Superintendent, Pipestone National Monument Date

Superintendent, Pea Ridge National Memorial Park Date

Stephen T. Miller 12/20/99

Superintendent, Tallgrass Prairie National Preserve Date

Superintendent, Ozark National Scenic Riverways Date

This pre-proposal outlines the approach to be used by fifteen parks in the Heartland Network to complete the initial steps for conducting biological inventories of vertebrates and vascular plants as described in the "Guidelines for Biological Inventories". The purpose of this pre-proposal is to describe how parks will work together to complete the steps up to and including the development of a detailed study plan for inventorying the vertebrates and vascular plants in the parks.

General Setting and Resources

Parks of the Heartland network extend across 8 states and a geographic area of almost 400,000 square miles; an area requiring 15 hours to cross by automobile. The parks represent several ecological regions that can be generally categorized as Tallgrass Prairie, Ozark Highlands, and Beech-Maple Forest. Small, historic and cultural parks are an important component of the Heartland Network. The small size of these parks makes them particularly susceptible to external threats. Though much larger in area, the river parks share similar concerns, and are challenged to protect resources within narrow river corridors influenced by activities throughout their watersheds. While each park in the network has a unique mission, and represents a distinctive component of regional biotic diversity, these parks share many resource management issues (Appendix 1).

Tallgrass Prairie Parks (EFMO, GWCA, HEHO, HOME, PIPE, TAPR). It is estimated that as much as 99% of the tallgrass prairie landscape has been converted to agricultural ~~use~~ and other uses. Parks within this region have a unique opportunity to help preserve features of this nearly lost ecosystem. Many of the parks possess remnant and restored prairies, and commonly use prescribed fire as a management tool. Because small parks are often inadequately buffered against edge effects, invasion by exotic species is a pervasive problem. Within the prairie region, pollution of water resources poses a serious threat. The springs, creeks and ground water of these small parks are particularly vulnerable to external pollution sources and cannot be insulated by buffer zones or within-park resource management. Most of these small parks are also faced with protecting unique habitats and managing state or federally listed, rare and endangered species. Among these parks, Tallgrass Prairie National Preserve is the only park of sufficient size to support bison grazing and varied burn regimes.

Ozark Highlands Parks (ARPO, BUFF, HOSP, ONSR, PERI, WICR). The parks of the Ozark Highlands include both historic and natural parks. Water quality and hydrology are critical issues for these parks, as is the challenge of watersheds that extend beyond park boundaries. Karst topography, with the resultant springs and caves, forms another unique feature of the region. The hundreds of caves within the parks provide habitat for gray, Indiana and Ozark big-eared bats. In addition to oak-hickory woodlands, Ozark Highlands' parks possess unique habitats that range from xeric grasslands (glades and savanna) to wetland communities (seeps, fens, springs). The parks are managing savannas, woodlands and open fields with prescribed fire. Buffalo NR supports the only elk herd within the Ozark Highlands. The parks include a large number of state and federally listed T&E species, including endemic and relict populations.

from it the articles relating to their cultures. The monument is approximately 283 acres and is located on slightly sloping land in a shallow glacial valley. The natural resource base of the monument consists of prairie and grassland. A 15-foot high Sioux quartzite outcrop runs north –south through the monument and is considered in conjunction with its Sioux Quartzite prairie a significant natural resource to the monument. Another significant resource is Pipestone Creek, which flows over the Sioux Quartzite outcrop forming Winnewissa Falls. The monument's vegetation consists of virgin native prairie, restored prairie, degraded prairie, old field communities, and oak savanna. One population of the federally listed threatened western prairie fringed orchid occurs in the native prairie and the federally threatened Topeka shiner occurs in Pipestone Creek below the falls. Degradation to the water quality from development of adjacent lands outside the monument and the loss of habitat from stream alteration and exotic vegetation are resource management concerns.

Tallgrass Prairie National Preserve was established on November 12. 1996 to preserve part of the remaining tallgrass prairie. Of the 400,000 square miles of tallgrass prairie ecosystem that once covered North America, less than four percent remains. The purpose of Tallgrass Prairie is to preserve, protect, and interpret for the public an example of a tallgrass prairie ecosystem on the Spring Hill Ranch, located in the Flint Hills of Kansas. The Z Bar Ranch, which forms the basis for Tallgrass Prairie National Preserve has been managed as a cattle operation since the 1880's. As the park service takes over the management of the lands to be more consistent with park service philosophy, the grazing regime will be altered, which will change how the prairie is allowed to express itself. A second component is the use of fire. Historically, the Flint Hills are burned every year in the spring, and has been done essentially yearly since the 1880's. As the park service changes the management of fire to be more consistent with historic cycles of burning every 3 – 6 years, and burning at other times of the year other than in the spring, the prairie will also respond differently. Currently, the inventories of plants, ~~birds, and fish~~ are limited and lack complete coverage of the park and the specimens that are probably found here.

Ozark Highlands Parks:

Arkansas Post National Memorial, originally established as a State Park in 1929, was federally designated in 1960 to preserve and commemorate the site of the first Anglo settlement of the lower Mississippi Valley. While it is known that the "Post of Arkansas" existed along several temporal timeframes and in at least three geographic locations, the current park boundaries include several formal post sites (1749-1756, 1779- present). The present site witnessed the demographic ebb-and-flow of Post villages, an American Revolutionary War engagement, and a major Civil War battle. The park's land base of 286 acres is defined as a terrace landscape and consists of 14 different vegetation types which range from primarily oak dominated forest stands to pine stands as well as a restored prairie and several, chronologically diverse, successional stands. Unforseen detrimental effects of prescribed fire resulted in the halting of prescribed burns at the park. Consequently, prescribed burns, its effect on park ecosystems, and forest health are primary points of interest for resource management. Other main areas of concern include tick-borne disease frequencies, fisheries management of the parks pond, bank erosion, and exotic plants and animals.

Buffalo National River. Located in the Boston Mountains of northwest Arkansas, the area was established as the nations' first National River in 1972. The Buffalo River flows unimpeded for approximately 150 miles from its headwaters in the Ozark National Forest through the Buffalo National River to its confluence with the White River. Approximately one-third of the 1,338 square mile watershed is in federal ownership (22% Ozark NF and 11% Buffalo NR). One-third of the national rivers' 94,218 acres is part of the National Wilderness Preservation System. The river has a variety of vegetation types underlain with a karst geology of sink holes, springs, seeps, and approximately 300 known caves including the longest known cave system in the state. The vegetation consists of oak, hickory and beech forests, cedar/sandstone glades, rare river cane communities, and relic plant communities such as post oak savanna remnants. Many rare and unique animal and plant species are associated with these communities including gray, Indiana and Ozark big-eared bats, forty-two populations of rare plants associated with springs/seeps, and the Ozarks' only Elk herd consisting of approximately 400 animals. Internal issues include lack of baseline data, exotics such as kudzu and Sericea lespedeza, and water pollution from sources outside the park.

Appendix 3. Preliminary Park Inventory Needs, Objectives and Priority Rankings for Vascular Plant and Vertebrate Taxa.

TAXA	PARK-SPECIFIC INVENTORY NEEDS AND OBJECTIVES	PRIORITY RANK
Plants	**Need:** Additional inventory is needed to identify critical habitats. A complete inventory of seeps and springs is needed. A complete inventory for noxious and problem species. **Objective** : To determine effects of change in land management practices on existing taxa. To locate possible "hot spots" for T&E species. To comply with enabling legislation and State and Federal law.	2
Birds	**Need:** A baseline data set for prairie chickens. **Objective:** To determine population trends in a prairie indicator species with changes in land management practices identified in GMP.	1
Fish	**Need:** A complete inventory of all streams, impoundments, and springs. **Objectives:** To identify and obtain baseline information to manage this group with changes in land management practices identified in GMP.	3
Herps	**Need:** A comprehensive inventory is needed. **Objectives:** The preserve has no baseline data on this taxa. To determine effects of change in land management practices.	4
Mammals	**Need:** A complete small mammal and large mammal survey. **Objectives:** Baseline data to determine affects of large ungulates on area vegetation and if management actions will be needed in the future. Changes in prescribed fire regime may alter small mammal numbers and species	5

Appendix 2. Vascular Plant and Vertebrate Inventories of Parks in the Heartland Network.

TAPR	Plants	Barnard, Iralee. 1995-1999. Floristic (inventory) of Tallgrass Prairie NP	412 species of plants have been recorded in the three years of this inventory. Vouchers are located at Kansas State U. STATE V.
TAPR	Birds	Powell, A. 1999. Birds present at Tallgrass Prairie NP Pres	A preliminary list of bird species present in the park in the summer of 1998. Final results are not yet available.
WICR	Plants	Hassien, Fred. Floristic Survey of Poaceae and Cyperaceae of WICR. 1990	This is a contracted study of Poaceae and Cyperaceae families. The study covered 10 sites over a 2-year period from April through August. Herbarium mounts of 101 species were made and are housed in the Wilson's Creek museum collection.
WICR		Key, J. S. WICR Herbarium Species List with corrections by Jay Raveill in Memorandum, 1981.	This is a list of plants collected by James Key in 1981 and verified by Jay Raveill in 1985. No information is available on the season or habitats the collection was made.
WICR		Herbarium Collection List from Museum Collection Records at Wilson's Creek. WICR. 1996.	This is a complete listing of plants collected for the herbarium at Wilson's Creek. Some of the specimens were collected by Hassien and some by James S. Key. This collection combined with the working collection the I&M Prairie Cluster maintains provides a comprehensive collection for the park.
WICR		Speck, Dorothy C. Vegetation Analysis of a Disturbed Limestone Savanna in S. W. Missouri. 1992.	The study site was limestone glade and adjacent oak savanna on Bloody Hill. Data was collected on weekly visits between March 1 and December 1, 1991. Community composition summaries include frequency and importance values for glade species. Appendix A
WICR	Birds	Powell, A. Breeding Birds of the Great Plains Prairie Parks. In draft.	Grassland bird survey that used a fixed-radium point count sampling strategy. Nine points were used at Wilson's Creek. No final report exists, only a summary report in and Inventory and Monitoring publication.
WICR		Confer, Leonard. "Birds of Wilson's Creek National Battlefield, Missouri (An Unreviewed Draft As of October, 1996)." WICR. 1996.	Unknown

Tallgrass Prairie National Preserve

Resource Management Plan

December, 1999

Superintendent	Date
Regional Director	12/30/99 Date

I. Introduction

The **significance** of Tallgrass Prairie National Preserve:

- Of the 400,000 square miles (1,036,279 square kilometers) of tallgrass prairie ecosystem that once covered North America, less than four- percent remains; Tallgrass Prairie National Preserve represents a portion of this remnant.
- The landscape of the Tallgrass Prairie National Preserve contains a unique collection of natural and cultural features that tells the story of human interaction with the prairie environment, from pre-contact times to the present.
- The Spring Hill Ranch is an outstanding representation of the transition from the open range to the enclosed holdings of the large cattle companies of the 1880s.
- The Spring Hill Ranch Headquarters area contains outstanding examples of Second Empire and other 19th century architectural styles.
- Tallgrass Prairie National Preserve offers opportunities for extraordinary and inspirational scenic views of the Flint Hills prairie landscape.

The **purpose** of Tallgrass Prairie National Preserve:

- to preserve, protect, and interpret for the public, an example of a tallgrass prairie ecosystem;
- to preserve and protect the cultural resources found within the preserve;
- to interpret for the public, the cultural resources and the social and cultural values represented within the preserve.

Mission Statement

Tallgrass Prairie National Preserve is a public/private partnership dedicated to preserving and enhancing a nationally significant remnant of the tallgrass prairie ecosystem and the processes that sustain it; preserving and interpreting the cultural resources of the preserve and the heritage associated with the ranch property; and offering opportunities for education, inspiration, and enjoyment through public access to its ecological, scenic, geological, and historical features.

The preserve was established in November 1996. The act that established Tallgrass Prairie National Preserve culminated more than 70 years of interest in, work towards, and opposition to the creation of a national prairie park.

The preserve is located in northern Chase County, Kansas, in the heart of the Flint Hills region. It consists of 10,894 acres (4398.1 hectares) of rolling grasslands. Two major creeks cross the property, Fox Creek and a tributary, Palmer Creek, also known as West Branch. Numerous springs, seeps, and stock ponds dot the landscape. In addition to the prominent buildings and structures related to the ranching history of the property, a number of less prominent archeological features have been identified on the land.

II. Goals

Desired Futures

The preserve's private landowner and the National Park Service maintain a strong partnership to accomplish the mission of the preserve.

This is the primary key to success at Tallgrass Prairie National Preserve. Ninety-eight percent of the land will remain in private ownership, so the maintenance of this partnership between the landowner and the land manager is vital to the success of the preserve.

The preserve's management team maintains effective working relationships with preserve neighbors, adjacent communities, and other partners in order to identify and cooperate on issues of mutual interest.

Many issues, such as viewsheds, water quality, transportation, and fire management, can be addressed effectively only through partnership efforts; educators and researchers may have important current knowledge, other landowners may have similar needs and concerns; nearby communities may have additional valuable resources. Accommodating diverse viewpoints and interests, and sharing information, will be very important for the successful, long-term management of the preserve.

The preserve has adequate information available for making management decisions.

There is a need to establish a long-term inventory and monitoring program at the preserve. The current state of the resources of the preserve must be established as baseline data, then quantitative and qualitative changes must be identified over time. Only through a comprehensive inventory and monitoring program can adequate information be made available for sound decision making.

Management activities and policies at the preserve lead to the enhancement of the tallgrass prairie ecosystem and a greater understanding of its associated processes.

Experts have consistently stated that to enhance the tallgrass prairie ecosystem it is important to maintain the processes that allow for the full expression of the ecosystem; it is less important to focus just on increasing the number of species present. The preserve provides opportunities at the local, regional, and national level to demonstrate and create a better understanding of these processes.

Heterogeneous disturbance regimes are an integral part of management activities at the preserve.

Experts suggest that in order to allow for the full expression of the tallgrass prairie ecosystem, elements of randomness should be encouraged. The complex interrelationships found within the prairie ecosystem, especially those involving fire and grazing, should be perpetuated in such a way as to ensure that the same activity (such as fire or grazing) does not occur in the same area, in the same way, at the same time, every year.

The preserve's seeps, springs, and streams are in good ecological condition and support a healthy and diverse aquatic community.

Healthy aquatic resources are vital to a fully functioning prairie ecosystem. These resources should be assessed and either maintained or restored to function as integral parts of the ecosystem.

Open and unobstructed views, an integral part of the prairie experience, are maintained.

The vistas and views have been identified repeatedly by the public as some of the preserve's most important resources. The relationship of earth and sky, the feeling of vastness (both day and night), and the openness of the landscape all contribute to a "sense of place." Existing developments should be managed to enhance views (i.e., power lines buried), and future developments should enhance and not detract from this important resource.

Resources are managed to interpret the legacy of human interaction in the Flint Hills.

The tallgrass prairie has evolved through the complex interplay between climate, geology, grazing, fire, and human activities. The span and variety of human activities in the Flint Hills appear to be well represented at the preserve. These stories should be told in large part through and by the resources of the preserve.

Natural and cultural resources are managed to preserve the character-defining features of the Flint Hills cultural landscape.

The Flint Hills landscape today represents the dynamic interrelationship of people and the land. Maintenance and enhancement of the tallgrass prairie ecosystem should be done in such a way that this landscape is maintained.

The preserve's historic records and objects are properly managed and preserved.

The preserve's historic records and objects should be an integral part of education and interpretation programming at the preserve. Preservation and use of these materials can bring visitors into direct contact with the story of the preserve. Archive materials should be available to researchers.

Education and interpretation efforts extend beyond the boundary of the preserve, in order to reach a wide audience.

Although on-site experiences will be a very important part of education and interpretation at the preserve, interpretive efforts cannot be successful if they are directed only toward those who visit a site. Outreach to communities, educational institutions, and potential visitors through off-site activities, dissemination of written materials, and development of distance learning opportunities should be pursued.

Visitors are transported to and through the preserve using a variety of transportation modes, in order to protect the landscape and provide for high-quality visitor experiences.

Because of the desire to preserve the landscape and protect integral parts of the prairie experience, a transportation system other than personal automobiles might be needed to transport visitors from a visitor center to the ranch headquarters area, or from one visitor area to another. A range of alternative visitor transportation modes will need to be considered. These options could closely tie transportation to interpretation at the site, and should address safety issues, including potential conflicts between grazers and visitors.

III. Resource Status and Issues

Tallgrass Prairie National Preserve was established on November 12, 1996 to preserve part of the remaining tallgrass prairie. Of the 400,000 square miles of tallgrass prairie ecosystem that once covered North America, less that four percent remains; Tallgrass Prairie National Preserve represents a portion of this remnant. This is the only national park area dedicated to the preservation of the prairie ecosystem. The purpose of Tallgrass Prairie is to preserve, protect, and interpret for the public an example of a tallgrass prairie ecosystem on the Spring Hill Ranch, located in the Flint Hills of Kansas.

The Z Bar Ranch, which forms the basis for Tallgrass Prairie National Preserve has been managed as a cattle operation since the 1880's, with variance in whether cattle were on it year around, long-season grazing, or double stocked as it is now. As the park service takes over the management of the lands to be more consistent with park service philosophy, the grazing regime will be altered, which will change how the prairie is allowed to express itself.

A second component is the use of fire. Historically, the Flint Hills are burned every year in the spring, and has been done essentially yearly since the 1880's. The affect is that the landscape has been manipulated to promote grass production for weight gain in cattle, which can amount to gaining 2 pounds a day under the current practices. As the park service changes the management of fire to be more consistent with historic cycles of burning every 3 - 7 years, and burning at other times of the year other than spring, the prairie will also respond differently.

Natural Resources

According to most authorities the tallgrass prairie was the dominant presettlement vegetation type in the eastern third of the Great Plains occupying approximately 142.62 million acres (60 million hectares); today, only an estimated four percent remains (Samson and Knopf 1994). Now the most extensive portion of this ecosystem comprises a narrow strip within the Flint Hills region of eastern Kansas and northern Oklahoma (US Department of the Interior 1979). Preserved from the plow by a unique combination of thin, rocky soils, and perpetuated by fire, climate, and grazing, the preserve contains a nationally significant remnant of this once vast tallgrass ecosystem. The preserve is dominated by unplowed tallgrass prairie, and is rich in springs, seeps, and intermittent and perennial streams that dot the landscape.

Geology

The preserve is wholly within the Flint Hills physiographic province. The Flint Hills have been formed by the erosion of a belt of resistant limestone and softer shale and sandstone that includes 40 separate formations and measures 3,000 feet (915 meters) in total thickness (Jones 1998). The highest elevations exceed 1,600 feet (500 meters) and the lowest are 1,150 feet (350 meters) in the Cottonwood River valleys.

Climate

The climate of the Flint Hills is sub-humid, continental with large daily, monthly, and yearly variations in temperature and precipitation. The average mean annual temperature is about 55° F (13° C). Generally, temperatures range from approximately 94° F (34.5° C) during the summer months to lows in the 30s in January (Kansas State University 1948-1996). The growing season averages more than 180 days. The Flint Hills lie in the 30-36 inch (76.9-92.3 cm) rainfall belt (Anderson 1953).

These large daily variations in temperature and precipitation can cause drastic shifts in weather patterns, resulting in safety concerns. The rapid approach of storms and other severe weather

systems, with associated lightning and flash floods, are major concerns during certain months of the year. Likewise, the absence of these storms may bring elevated temperatures and the danger of heat stress to those unfamiliar with summer conditions on the prairie.

Minerals

A 12-mile (20-km) wide uplift that extends through the preserve dominates the petroleum geology of Chase County. According to Carr, this uplift is the most important feature in both structural and stratigraphic trapping of oil and gas in Chase County. The preserve and surrounding area has a history of mineral activities (gas production) since 1929 (Carr 1998). Neither NPT (the surface landowner) nor the NPS owns or controls the current mineral interests. These were retained by Boatman's Bank (Trustee), now Bank of America, when the property was purchased by NPT. The bank reserved all oil, gas, and other minerals of any kind whether a liquid, solid, or gas hydrocarbon or non-hydrocarbon lying more than 200 feet (61 meters) below the surface, for a period of 35 years from June 4, 1994. The Trustee will not conduct exploration within 220 yards (201 meters) of the main house and barn, and will not engage in any commercial hard rock mining, surface mining, strip-mining, coal mining, or quarrying. The Trustee has leased the property for oil and gas exploration to Knighton Oil Company, Inc. (New Owner in place 12/5/99)

Presently, gas production on the preserve is from very shallow reservoirs (200-400 feet; 61-122 meters) and is of a low pressure and a low flow rate (Carr 1998). While it is generally agreed that these shallow reservoirs have additional potential, the characteristics of the gas produced may make production uneconomical (Carr 1998, National Park Service 1999). Potential production from deeper formations within the preserve would have to come from poorly defined strata and would be highly unlikely or speculative at best (Carr 1998, National Park Service 1999). According to Carr, a total of 47 gas wells have been drilled on the preserve, 22 have been plugged and abandoned, and 25 remain shut-in, non-productive (National Park Service 1999). In addition to the shut-in gas wells, surface production equipment including well flowlines, field-gathering lines, and meter runs exist on the preserve.

Associated with these operations are soil contamination, resulting in the loss of vegetation cover; actively eroding creek banks; and a lack of adequate signage and fencing to ensure resource protection (National Park Service 1999).

Soils

Several soil associations are identified within Chase County but no site specific soil survey has been completed for the preserve. Soils are derived from limestones, sandstones, and shales. The soils may be relatively deep in the bottoms of the larger stream valleys, but are typically thin on the flanks and tops of the hills themselves; bedrock exposures are visible throughout the region (Jones 1998). The soils are excessively drained, and runoff is rapid with slopes ranging from 30-50% found on the preserve.

Prime and Unique Farmlands

Prime or unique farmlands are defined as soils particularly suited for growing general or specialty crops. Prime farmland produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts.
There are three soil units within the preserve that are considered "prime farmland" soils--Redding, Chase, and Ivan (Broyles, 1999 personal communications). These are located in the area now planted in brome grass, and in some other areas of the preserve that historically have been under cultivation.

Wetlands

Wetlands are an imperiled national resource, with a loss rate of 300,000 - 450,000 acres (121,114-181,671 hectares) annually on a national scale (Feierabend and Zelzany, 1987). Wetlands help convert plant material into nutrients, they function in flood and erosion control, and they improve water quality. The NPS strives for a "no-net-loss" of wetlands in any management action affecting those resources. Because of the lack of site-specific information regarding

wetlands within the preserve, the NPT has requested a survey from the Natural Resource Conservation Service (NRCS) to delineate those areas.

Current information regarding wetlands has been derived from the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI). The Housing and Urban Development (HUD) flood hazard maps provide some information on some type of floodplain delineation. The state of Kansas reports all state and federal areas containing wetlands, but does not include the majority of wetlands on private lands. Wetlands within the state are currently classified as "waters of the state," and are designated for noncontact recreation, food procurement, and aquatic life support. There is no estimate of wetland losses within the state as of 1996, according to the Kansas Water Quality Assessment Report (Kansas Department of Health and Environment 1996).

Vegetation

Survey notes from the 1850s describe areas of "nearly all prairie" and a "small quantity of timber on the creeks" in the region of the present day preserve (Barnard 1997). Recent attempts by Lauver (1998) to classify vegetation alliances and plant communities found eight plant community types occurring within the preserve. The preserve is dominated by the *Andropogon gerdardii* (big bluestem) - *Sorgashastrum nutans* (Indian grass) - *Schizachyrium scoparium* (little bluestem) Flint Hills herbaceous vegetation community, or tallgrass prairie. Prairie is found on nearly level land as well as steep slopes on uplands and on a wide array of soils. Other community types such as the Bulrush-Spikerush Marsh and Limestone outcrops are very narrow and found in small patches (Lauver 1998).

Under the current lease arrangement for the preserve, prairie vegetation is burned annually in the late winter or early spring, usually around March 20th. The vegetation is grazed in an early intensive-stocking program for approximately 90-100 days between about April 15th and July 31st. The cattle are removed and the vegetation is allowed a period of regrowth for the remainder of the growing season.

The floodplain forests along Fox and Palmer creeks are examples of the ash-elm-hackberry-burr oak-black walnut floodplain forest community. It is characterized by nearly level bottoms and terraces along major streams and rivers (Lauver 1998). This floodplain community has been called the rarest in the state because of the tendency, historically, to plow these deeper soils and to replace native vegetation with agricultural or grazing crops (National Park Service, 1998 Enhancement Report). The bottomland along Fox Creek is currently planted in brome grass. Cool season grasses like brome are usually grazed in the spring between March 16 and June 30 and again in the fall between about September 1 and December 31, or they are cut for hay.
The riparian forest along Fox Creek has been heavily used by livestock and shows signs of soil compaction, erosion, and loss of herbaceous species. Some row crops are planted in the southern area along Fox Creek under an annual lease arrangement with NPT. The floodplain vegetation along Palmer Creek appears to be diverse and healthy (National Park Service Water Resources Division trip report March 1997).

Dominant species, identified by the Kansas Biological Survey, are *Andropogon gerdardii* (big bluestem), *Schizachyrium scoparium* (little bluestem), *Bouteloua curtipendula* (sideoats grama), *Amorpha canescens* (leadplant), *Sorgashastrum nutans* (Indian grass), *Buchloe dactyloides* (buffalograss), *Vernonia baldwinii* (ironweed), *Psoralea tenuiflora* (wild alfalfa), and *Bouteloua hirsuta* (hairy grama). The relatively high cover of *Buchloe dactyloides* and *Vernonia baldwinii* indicates that some areas of the preserve (ridgetops and creek floodplains) are prone to overgrazing (Lauver 1998).

Approximately 400 species of vascular plants have been identified within the preserve as of 1999, from observational data and 11 photopoint sites (Barnard 1999). Additional vegetation data documents 46 plant species from 100 plots within 10 sampling sites from the preserve. This research noted a dramatic decline in vegetative cover between the June and August sampling periods (Thomas 1997). Presently, floral data collection continues as part of a photopoint record

(Barnard 1998) and vegetation community transects have been established within the riparian zones and selected prairie sites covering 100 individual plots (Thomas 1997).

Threatened and Endangered Plant Species

No plants are included on the state threatened, endangered, or Species in Need of Conservation (SINC) list (Kansas Department of Wildlife and Parks. Strategic Plan 1991-1996). However, two plants found within Kansas, *Platanthera praeclara* (western prairie-fringed orchid) (Sheviak and Bowles) and *Asclepias meadii* (Meades milkweed) (Torrey ex A. Gray), are on the federal list of threatened species. Neither of these is known to be within the preserve; surveys for other species have been limited or non-existent.

Ecologically Critical Areas or Unique Natural Resources

The tallgrass prairie is the dominant vegetation community within the preserve and constitutes a unique resource on a national and global scale. This habitat is also listed as state prime habitat (Kansas Department of Wildlife and Parks. Strategic Plan 1991-1996).

The many springs and seeps within the preserve, having associated free-flowing, intermittent, or perennial streams, are prime habitat within the state and considered crucial habitat "wherever they occur" (Kansas Department of Wildlife and Parks. Strategic Plan 1991-1996). One perennial stream within the preserve forms the habitat for the federally listed endangered species, the *Notropis topeka* (Topeka Shiner).

Exotic Plant Species

Over 30 plant species classified as "non-native" within the state have been found within the preserve. Many of these plant species do not constitute a serious threat to the resource, including *Lamium amplexicaule (L.)* (henbit), *Poa pratensis (L.)* (Kentucky bluegrass), and *Stellaria media (L.) (cyrillo)* (common chickweed). Other species, such as some members of the *Bromus* group or sweet clovers, are only of concern to severely impacted or overgrazed prairies.

Andropogon Bladii (Caucasian bluestem) represents a serious threat and has been found within the preserve. Control of this species is difficult because it responds positively to fire and is not impacted by mowing or normal grazing regimes. It has been found on the preserve in three sites, the largest, approximately one (0.4 hectares) in size. Dr. Clenton Owensby, professor of range management at Kansas State University (KSU), stated that he fears Caucasian bluestem more than any other exotic (Clubine 1992).

Special attention should be given to state-listed noxious weeds and especially to potential problem species such as sericea lespedeza (Lespedeza cuneata). While not found within the preserve, this species "may pose a serious threat to the biotic integrity and biodiversity of Flint Hills tallgrass prairie in the next decades" (National Park Service 1998 Enhancement Report).

Water Resources

Streams and Creeks

The major aquatic resources within the preserve consist of Palmer Creek, a tributary to Fox Creek, located in the northern portion of the preserve and flowing west to east; and Fox Creek, a major tributary to the Cottonwood River, bisects the preserve flowing north to south. Floodplains for these stream reaches have been digitized and mapped from the Federal Emergency Management Agencies Flood Insurance Rate Maps. Additional unnamed tributaries discharge into the Fox Creek.

In 1998, the Kansas Department of Health and Environment initiated a monitoring program for Fox and Palmer creeks involving one fixed site on both. The sampling includes pH, temperature, dissolved oxygen, biological oxygen demand, nutrients, organics, heavy metals, bacteria, and

some invertebrate samples. Prior to this program, no formal sampling procedure had been implemented; therefore routine water quality data is lacking.

The initial sampling in July 1998, showed extremely high fecal coliform and fecal streptococcus counts in both Fox and Palmer creeks. The counts from the August sampling were greatly reduced. (Kansas Health & Environment Laboratory 1998). The July samples exceeded the state water quality standard coliform count for whole body contact of 200/100 ml and also the state standard for non-contact, which is 2000/100ml. The high fecal counts may be the result of non-point source pollution due to run off from heavily grazed pastures (Department of Health and Environment Kansas Water Quality assessment 1996).

Some earlier water quality data for Fox Creek is associated with fisheries sampling efforts. Fox Creek was given a high score for habitat for aquatic macroinvertebrates. Ninety-seven individual insect species and 23 species of fish were collected. However, Fox Creek was rated as 'poor" in stream health, mainly due to an increase in species tolerant to pollution and a decrease in intolerant species (Kansas Department of Wildlife and Parks 1995).

A recent follow-up evaluation was performed on three preserve aquatic resources using a Bureau of Land Management technique for assessing riparian areas. This technique evaluates 17 factors including hydrology, vegetation, and stream geomorphology, and results in a finding in one of three categories: functioning, functional-at-risk, or nonfunctioning. Palmer Creek was assessed in two locations: a west portion and an east portion close to Fox Creek. The west segment was judged functioning, despite some concerns over the lack of woody species. The eastern portion exhibited degraded conditions due to erosion and was labeled nonfunctioning. An unnamed tributary to Fox Creek was labeled functional-at-risk due to incising at its lower end. The other condition assessments for this area were notable for their excellence (National Park Service Water Quality Division, trip report October 1997

Stock Ponds, Seeps, Springs

Additional water resources include numerous seeps and springs; 26 constructed stock ponds, including one 200-acre-ft watershed retention impoundment; and several tributaries with variable flows. The stock ponds serve as water sources for cattle and as retention ponds for surface water run-off during storm events.

The presence of a federally listed species, the Topeka shiner, in a tributary downstream from a pond has created concerns over the possibility of dam failure and the introduction of fish species from the pond which might impact that endangered species. However, the preserve lacks any water quality or biological data on species present within these ponds except for a survey for potential recreational fishery within ten ponds conducted by the Kansas Department of Wildlife and Parks (Kansas Dept. of Wildlife and Parks. 1996. Report: Ponds on the Z-Bar Ranch). A recent inventory of the 26 dams provided physical data regarding the ponds, dimensions, and maximum capacity. While all were classified as having a "low" hazard potential, a number of dams were identified as being in need of corrective work to assure structural soundness (Rizzo 1998).

The preserve lacks long-term data sets on water quality, hydrology, and geomorphology.

Wildlife

Mammals

Little is known about the mammal species within or transient to the preserve. Approximately 120 mammal species, including transient and exotic, occur within the state (Kansas Department of Wildlife and Parks Strategic Plan 1991-1996). Some adjunct data does exist for the area of the preserve with a total of 59 species of mammals reported by Moore in 1990 for Chase, Lyon, and

Morris counties. The list was compiled from references dating from 1958, 1981, and 1985, and provides a general reference for mammals that might be sighted within the preserve.

Large mammal species, such as *Odocoileus hemionus hemionus* (mule deer), *Odocoileus virginianus* (white-tailed deer), and *Antilocapra americana* (antelope) have been observed within the area of the preserve. *Bison bison* (bison) were "abundant" in all counties in the state when the first European settlers arrived. They were gone from the Flint Hills area by the early 1870s; the last reported sightings in the state were in 1898 (Choate 1987). The report by Moore also contains four species that have historical sightings but are no longer found: *Ursus americanus* (black bear), *Ursus horribilis* (grizzly bear), *Felis concolor* (mountain lion), and *Cervus canadensis* (elk).

Little is known regarding small mammals within the preserve. Restoration of some non-huntable species such as the *Lutra canadensis (Schreber)* (river otter) took place in the Cottonwood River during the 1970s (Sorenson, 1998, personal communication).

Birds

Bird species information compiled by the Kansas Ornithological Society documents 428 species of birds known to occur within the state. The NPS has entered into a grassland bird study with the U.S. Geological Survey, Biological Resources Division, which will involve eight parks, including the preserve, over a three-year period. The field work for the preserve study, a baseline bird survey, was completed in August 1999 with the final report expected to be finished by the end of 1999.

The Kansas Coordinator for Partners in Flight Program has voiced concerns regarding species in decline, such as the *Tympanchus cupido (L.)* (greater prairie chicken). Studies of grassland bird reproduction and land management treatments from Konza and northeastern Oklahoma have shown that spring burning followed by grazing (especially early intensive stocking) resulted in reproduction levels below replacement rates (Kansas Biological Survey personal communication 1998).

Reptiles and Amphibians

Twenty-eight species of amphibians (8 salamanders, and 20 frogs and toads) and 53 species of reptiles (4 turtles, 12 lizards, and 37 snakes) are found in the state (Kansas Department of Wildlife and Parks Strategic Plan 1996). Twenty-one species, including both amphibians and reptiles, are found at the preserve (Kansas Herpetological Society 1997.) However, these were identified in a cursory look conducted by largely untrained volunteers over a two-day period.

Fisheries

Twenty-four species of fish were identified in Fox Creek, during a 1995 sampling effort (Kansas Department of Wildlife and Parks 1996). Concern was voiced at that time over the presence of *Micropterus salmoides (Lacepede)* (largemouth bass) and the absence of *Micropterus punctulatas (Rafinesque)* (spotted bass), indicating negative changes in the native fish fauna. Another sampling of Fox Creek in 1996 identified species that indicate a disturbed or unsettled community. The large number of stock ponds is thought to contribute to this imbalance, as species are released from ponds during flood events (Tillma 1996).

Additional sampling by the Kansas Department of Wildlife and Parks within Palmer Creek and two unnamed tributaries found 14 species of fish, including the Topeka shiner and the *Luxilis cardinalis* (cardinal shiner). The Topeka shiner, found in one of the unnamed tributaries, is federally listed as an endangered species under the authority of the Endangered Species Act of 1973 (Final Rule signed 11/25/98); and the cardinal shiner is a State SINC species. *Pimephales promelas (Rafinesque)* (fathead minnow), found in large numbers in ponds, were also located in the tributary headwaters, implicating the ponds in affecting the natural fishery (Kansas Department of Wildlife and Parks 1997).

When the Kansas Department of Health and Environment began monitoring Fox Creek, initial sampling found five species of unionid mussel, including the exotic *Corbicula fluminea* (Asiatic clam) (Medland 1997, personal communication).

Threatened, and Endangered Species

The Topeka shiner is federally listed as an endangered species under the authority of the Endangered Species Act of 1973 (Final Rule signed 11/25/98); and the cardinal shiner is a State SINC species.

The federally endangered *Noturus placidus* (Neosho madtom) is suspected to be within the Cottonwood River of which Fox Creek is a tributary (National Park Service "Enhancement Report" 1998).

The Kansas Natural Heritage inventory monitors some 130 species of vertebrates and invertebrates and some 400 species of plants in Kansas. No occurrences are documented from within the preserve but no formal surveys have been conducted for many of these species (Busby 1997, personal communication).

It is thought to be highly unlikely that rare or endemic terrestrial plant or animal species will be discovered at the preserve. However, all aquatic areas are recognized as "hot spots" and should be sampled for invertebrates and mussels. Springs and seeps are considered as sites for biodiversity on the prairie, according to recent findings on the Konza Prairie. About 28% of the vascular plant species at Konza are found associated with these areas. Similar findings may also be true for aquatic invertebrates (National Park Service "Enhancement Report" 1998).

Air Quality

The Clean Air Act, P.L.88-206 as amended, designates units of federally owned lands into different categories of air quality. According to specialists within the National Park Service Air Quality Division, the preserve, if federally owned, would fall in the Class II category and all applicable state air quality regulations would apply. (Flores, NPS Air Quality Division 1999, personal communication).

Site specific air quality data for the preserve is lacking, but overall, the air quality for the area is presumed to be good (Weir, 1997 personal communication, Kansas Department of Health and Environment). Particulate data exists for an Emporia station (approximately 18 miles east of the preserve) from the 1970s. All of the current air quality data comes from a Wichita station; no data is currently being collected from Chase County or the preserve area. Analysis of lead, carbon monoxide, and sulfur dioxide levels revealed no problems that would impact the preserve. The only exceptional events with particulate matter less than 10 microns (PM-10) were due to dry, dusty conditions (Wier 1997, personal communication).

Fire Management

The historic role of fire in the prairie ecosystem is well documented in the literature (Bragg 1995, Collins and Barber 1985, Hartnett et al.1996). Fire that is highly variable in both frequency and seasonality is essential for the maintenance of a functioning prairie ecosystem. It is this variability that encourages the greatest expression of biological diversity.
Fire also plays an important role in the management of Flint Hills prairies as pastures. Since most of the leased pastures throughout the Flints Hills are lightly stocked in the latter months of the growing season, vegetation remains into the fall resulting in a large accumulation of biomass during the winter. Since it is difficult to control the spread of wildfires in grassland ecosystems and commercial grazing sets the pattern for the entire region; annual controlled spring burning is widely practiced.

Viewsheds (Landscapes and Vistas)

Repeatedly, the public has identified the vistas and views as some of the preserve's most important resources. The relationship of earth and sky, the feeling of vastness, and the openness of the landscape all contribute to a "sense of place." There are very few intrusions on the land. Several vistas are noteworthy within the preserve as representative of the larger, nearly undeveloped and sparsely populated Flint Hills region. From U.S. 50 north on State Hwy 177 the preserve flanks the highway on both sides, providing a pastoral scene and appealing landscape. The ranch headquarters area represents the only large human constructed element visible resulting in a broad vista of the verdant valley.

To the east of Hwy 177, from the front porch of the main ranch house, lies another broad vista of the distant gallery floodplain forest backed by the escarpment of rolling hills. Again, this view contains few human intrusions except for the cultivated brome field and a few barely visible fence lines.

To the west of Hwy 177, the tallgrass prairie rises to the main north-south ridge system that defines the preserve's more remote sections. Only a few trees are visible in the draws where water is more plentiful and the effects of fire are less active. This rounded landscape beckons one to come and examine it more closely.

Perhaps the most spectacular vistas within the preserve, however, are atop the long north/south ridge system. From these vantage points, a person can see great distances in all directions. With the exception of the development associated with Strong City, few human structures are visible from these lookout points. Communication towers are located southeast and southwest of the preserve and can be seen from some areas within the preserve. Depending on the season, a rolling sea of green or brown expands to the horizon. Here, people have an opportunity to ponder the past and reflect on the vastness that American Indians and early Euroamerican settlers encountered.

Night is a special time to experience the preserve and its vast expanse of sky. Although lights from events in Strong City are visible, on most clear nights the sky appears as a giant dome of black, studded with stars, unfiltered by city lights. These relatively undisturbed viewsheds offer visitors a unique opportunity to experience a large expanse of prairie unaltered by modern intrusions.

Soundscape

Some of the best places to listen to the prairie is on the bus tour road while taking a guided tour onto the prairie. When the guide shuts off the engine and the sounds of the prairie come alive because of the lack of intrusive sounds. This becomes more apparent as one travels further north and you are further away from Highway 50 which creates traffic noise.

Another area that allows for the peace and quiet to take over is along the nature trail north of the headquarters area. The trail is sheltered from the road noise to the south because of the hill that the ranch sits on.

Grazing

Grazers inhabiting the tallgrass prairie prior to European settlement included bison, elk, pronghorn antelope, white-tailed deer, mule deer, numerous species of small rodents, and invertebrate species. The extent to which large grazers used the prairie is unclear (Roe 1970). The Flint Hills have been used intensively for cattle grazing since the early 1880s.

Cattle grazing regimes take several forms within the Flint Hills, including yearlong cow-calf operations, May-to-October steer grazing operations, and intensive early stocking. The latter

operation places twice the number of animals on the land for one-half the time. Cattle are usually brought on in late April and removed by late July to allow for recovery of the prairie. One criticism of this regime concerns its homogeneity and the indication that intensive early stocking promotes a lack of diversity when used as the sole management strategy, though there is no compelling evidence against intensive early stocking as one component of land management (Hartnett, personal correspondence July 14, 1998).

However, declining populations of some avian species such as the greater prairie chicken are in part due to the practice of annual spring burning and early intensive stocking, which reduces vegetative cover during the nesting season (Kansas Biological Survey personal communication 1998). Early work by Weaver also questioned the role of heavy grazing of tallgrass prairie, and suggested that it resulted in degraded range with low diversity (Weaver 1954).

Research is underway regarding whether bison and cattle grazing may differ in their effects on tallgrass prairie vegetation composition and biodiversity. Although both cattle and bison display generalist food habits, bison select almost exclusively grasses and may reduce the dominance of matrix grasses. Other behaviors, such as wallowing and the bison's tendency to graze closer to the ground, may cause bison to differ from cattle in their effects on species richness and grassland biodiversity (Hartnett 1996).

Large herbivores alter the abundance of various plant species through the selective removal of preferred forage species. Bison diets consist of up to 90 percent grasses, while cattle diets consist of about 70 percent grasses (Plumb 1993). Selective grazing of grasses releases forbs from competition pressure and increases plant species diversity (Collins 1987).

Recently burned areas are often preferentially grazed by cattle or bison or both (Shaw and Carter 1990). Large grazers can trample vegetation (Wallace 1987) and engage in wallowing; the impacts of which may persist for decades. Other groups of small herbivores, such as *Geomys bursasrius (Shaw)* (pocket gophers), provide establishment sites for plant species uncommon in undisturbed prairie, thus increasing diversity.

Currently, the inventories of plants, birds, and fish are limited and lack complete coverage of the park and the specimens that are probably found here.

Vascular Plants:

Irelee Barnard. 1999. A Flora Report has been compiled and submitted to NPS under contract.

Ten fixed photopoints were established in four of the pastures in the preserve and monitored through three growing seasons.

Dr. Tom Eddy. 1997. A Plant Diversity Survey report was compiled and submitted as part of the LTEM Program.

Twelve line transect sites were established in 3 pastures and was measured for mean cover in June and August.

Dr. Tom Eddy. 1999. Riparian Communities comparison for two years.
Sampling plots were sampled in October 1997 and May, 1998 using transect protocol following the guidelines of the Prairie Cluster Long-Term Ecological Monitoring Program.

Birds:

Powell, A. 1998-1999. Breeding bird survey of Tallgrass Prairie National Preserve. Field Work Completed.

Twenty-six fixed-radius points were established to survey breeding birds. Also migrating and wintering birds were counted using a modified line-transects.

Fish:

Kansas Wildlife and Parks 1999. Survey of 3 drainages to locate Topeka Shiners, a Federal Listed Endangered Species. Listing of other species observed.

Kansas Cooperative Fish and Wildlife Research Unit 1999. Verification of Topeka Shiner in drainage where located first by Kansas Wildlife and Parks.

Herps: No surveys done

Mammals: No surveys done

Invertebrates: No Surveys done

THEMES	STATUS
Historic Database	Current information is located in GIS information
Natural Resource Bibliography	
Air Quality	Site specific data for preserve is lacking although data is collected at Wichita southeast of preserve Fire will increase particulate matter during management burns. Dust and increased vehicle traffic f visitation will have some impacts on air quality.
Climate	Maximum and minimum temperatures are being taken and rainfall accumulations are being record from two locations in the preserve. No data is being collected on wind speed and direction, relative humidity, and specific moisture duration events.
Base Cartography	
Vegetation Map	
Soils Inventory	
Geologic Map	
Geologic Features	
Disturbed Lands	Information done on GIS
Water Quality	Ongoing analysis being done monthly with Kansas Health and Environment
Water Bodies	Mapped on GIS
Species Inventories:	
Birds	
Fish	Limited Inventories of some streams
Mammals	No inventories completed
Plants	
Herps	Limited Inventory by volunteers on one occasion
Insects	No inventories completed

Taxa	Taxa	Priority rank
Plants	**Need:** Additional inventory needs to identify critical locations. **Objectives:** To determine effects of change in land management practices on existing taxa.	5
	Need: A complete inventory of seeps and springs **Objectives:** to locate possible "hot spots for endangered and/or threatened species.	
	Need: A complete inventory for noxous and problem species **Objectives:** To comply with Enabling Legislation and State and Federal Law.	
Birds	**Need:** A baseline data set for prairie chicken **Objectives:** To determine population trends in a prairie indicator species with change in management of land use practices.	6
Fish	**Need:** A complete inventory of all streams, impoundments, and springs **Objectives:** To identify and obtain baseline information to manage this group with changes in land management practices as identified in GMP	4
Herps	**Need:** A comprehensive herp survey **Objectives:** The preserve does not have any baseline data on this taxa. No existing inventory information exists regardging herps.	2
Mammals	**Need:** A complete large mammal survey. **Objectives:** Baseline data to determine affects of large ungulates on area vegetation and if management actions will be needed in the future.	1
	Need: A complete small mammal survey. **Objectives:** The preserve will be changing prescribe fire regimes in future and the effects on populations may alter numbers and species found.	
Invertebrates	**Need:** A comprehensive invertebrate survey. **Objectives:** To identify and obtain baseline data to manage this group with changes in land management practices as identified in GMP	3

CULTURAL RESOURCES

Archeological Resources

Archeological investigations at the preserve have been limited. Prior to its establishment, only two prehistoric archeological sites had been formally identified within the preserve. The NPS Midwest Archeological Center conducted limited fieldwork in 1998, representing the preserve's first formal archeological investigations. Twelve prehistoric and historic sites were documented, confirming and verifying some of the finds previously discovered in the field or through archival research. The sites are scattered across the preserve, and include lithic scatters, a quarry/workshop site, cairns, early Euroamerican farmsteads, the Spring Hill Ranch headquarters area, and the Lower Fox Creek School area. Isolated chipped stone implements have been found at several locations, and these will continue to be discovered. Many will relate to specific activity areas that are themselves associated with other sites, including camps or habitation sites.

The potential is high for the identification of sizeable numbers of prehistoric and historic sites and features within the area of the preserve, based on the density of sites documented in Chase and adjoining Morris counties. Prehistoric sites and features will likely range from probable kill sites to quarries, workshops, single and multiple component habitation or campsites, possible burial mounds, cairns, rock alignments, and tipi rings. Historic Euroamerican sites and features will likely include homestead/farmstead sites, dump sites, remnant plantings, fence lines, roads, and

water control devices. Distribution will also vary across the preserve, in both the valley bottoms and stream terraces, and the upland areas (Jones 1998: 52-59).

Ethnographic Resources

Collection of information about the park's ethnographic resources is ongoing. This area of the Flint Hills had been affiliated with numerous groups including the Kaw, Pawnee, Wichita and Osage. Ongoing consultation with these tribes will assist in identifying and protecting important ethnographic resources. Such resources may be sites, structures, objects, or landscapes. Some documented archeological sites have ethnographic value and importance. Natural resources may also be identified as ethnographic resources, if they have legendary or religious significance, or traditional subsistence value to a group.

An initial ethnographic report with a plant list is underway. This will summarize the ethnography of pre-contact, post-contact, and contemporary groups represented in the preserve. The report will include a discussion of the groups' uses, perceptions, and occupation of the land, and cultural values associated with the natural and cultural resources. An element of this work is a comprehensive plant list that itemizes plant uses by American Indian tribes.

To date, 201 ethnographic resources have been identified. Four are ethnographic landscapes, one for each of the four culturally affiliated tribes. There are 197 plant species associated with American Indian uses that have been identified. The information presented in the ethnographic report will be entered into the NPS Ethnographic Resources Inventory Database.

No sacred sites or Indian Trust resources have been identified to date. In the event that future research and consultation identifies such resources at the preserve, all compliance requirements, consultation, and NPS policies will be followed.

Structures

The preserve contains over 60 known structures and features, and it is expected that as additional survey work is accomplished, more will be discovered. These resources document the evolution of farming, ranching, and rural lifeways on the property from the mid-19th to mid-20th centuries. Of the 60 known structures and features, 38 were documented as part of the List of Classified Structures (LCS) survey in 1997. The majority of these are concentrated at the Spring Hill Ranch headquarters, including a Second Empire house, a three-story barn, a springhouse/smokehouse, outhouse, icehouse, and a poultry house/scratch house. All of these are built of local limestone. There is also a stone schoolhouse, the Lower Fox Creek School, 1/2 mile to the north, and 36 miles of stone fence. Following completion of the HRS, the LCS will be updated and finalized.

The entire preserve property was listed as a National Historic Landmark (NHL) in 1997 for its association with the cattlemen's empire of the late 19th century and its association with the transition from the open range to the enclosed holdings of the large cattle companies in the 1880s. The period of national significance extends from the first purchases of lands by Stephen Jones in 1878, and extends through 1904, when the ranch lands began to be sold off by Bernard "Barney" Lantry's sons. Eight buildings and four structures have been identified as contributing to the property's national significance. Vehicular traffic in the form of visitor parking, tour buses and stock trucks may come into direct contact with some of the resources, or cause heavy vibrations that may contribute to the collapse of fragile or deteriorated elements such as stone walls or stone bridges. Structures no longer actively in use at other locations across the preserve, such as stone walls and ruins, suffer from deterioration and possible impact from grazers. Range fires could also impact historic remains that include wood elements, such as the corrals.

Cultural Landscapes

Two sites within the preserve are identified as contributing sites to the 1997 NHL designation: the garden terraces in front of the ranch house and the extensive ranch lands. There are five

retaining walls forming terraces between the house and Highway 177, which runs north/south through the NHL. The terraces are built of local limestone in various masonry techniques, including dry-laid rubble, roughly squared rubble, and coursed ashlar with quarry face. The upper terrace contains a circular stone base for a fountain. The ranch lands include landscape features consisting of vast expanses of native prairie rangelands with intermittent corridors of woodlands along streams and drainage ways. The preserve's ranching and agricultural history can be seen in the relationship of pastures and former cultivated areas defined by stone fencelines, domestic spaces with historic plantings, remnants of hedgerows, and roads.

The NPS Midwest Regional Office has begun a cultural landscape inventory (CLI) at the preserve. In addition to survey work at the school and ranch headquarters area, basic information was collected at the Red House ruin site, several mid-19th century occupation sites, quarry sites, stone fencelines, and at water features. The ranch headquarters area includes plantings of mature walnut and juniper trees. The habitation sites show evidence of human occupation such as Osage orange hedgerows, stone fence enclosures, and surface depressions.

Museum Collections

Both the NPS and the NPT have acquired cultural resource collections. At this time NPS-owned museum collections include archival, historic, and archeological collections. The potential exists to develop an ethnographic collection; however, to date there are no extant materials. Natural history specimens have been collected from the preserve by researchers at local universities. An Interim Scope of Collections Statement (SOCS) has been completed, and defines the use and scope of museum collections that contribute directly to the mission of the preserve. It also provides guidance on future acquisitions in order to prevent arbitrary growth of the collection. The NPT will assist in acquiring objects, archival materials, and visual materials, as defined in the SOCS.

The NPS and NPT hold joint stewardship of the collections. Presently, collections owned by both the NPS and the NPT are located in various places. NPT-owned collections are exhibited in the Spring Hill Ranch house, the barn, the smokehouse, and stored in offices. Collections owned by the NPS are stored at the preserve headquarters, temporarily at the Midwest Regional Office in Omaha, Nebraska, and at the Midwest Archeological Center in Lincoln, Nebraska.

TITLE	CURRENT AND APPROVED	INCOMPLETE; NEEDS REVISION OR UPDATING	NEEDED
Servicewide Inventories, Lists, Catalogs, and Registers			
Cultural Landscapes Inventory (CLI)		Contracted	Yes
Cultural Resources Bibliography (CRBIB)			Yes
Collection Management Plan			Yes
Cultural Sites Inventory (CSI)	Yes	Ongoing	
List of Classified Structures (LCS)	Yes	Ongoing	
National Catalog of Museum Objects			Yes
National Register of Historic Places	Yes		
Basic Cultural Resource Documents			
Archeological Overview and Assessment		limited survey work done	Yes
Archeological Identification Studies		limited survey work done	
Rapid Ethnographic Assessment Procedures (REAP)			Yes
Cultural Affiliation Study	Yes	Ongoing	
Ethnographic Landscape Study		Ongoing	
Ethnographic Overview and Assessment		Ongoing	
Ethnographic Oral Histories and Life Histories		Ongoing	
Ethnographic Program		Ongoing	
Historic Resource Study			Yes
Historic Base Map	Yes	GIS	
Park Administrative History	Yes		
Scope of Collections Statement			
Special Resource Studies and Plans			
Archeological and Ethnographic Collections Studies			
Archeological Data Recovery Studies			
Collections Management Plan			
Collection Storage Plan			
Collection Condition Study			
Cultural Landscapes Report (CLR)			

NATURAL RESOURCES	FY-2 Actual ($000)	FY-1 Actual ($000)	Current FY Actual ($000)
Park Base			
Cluster/Region			
WASO/National			
Fee Demonstration			
Other non-NPS agency			
Donations			
Other			
Total	$0.00	$0.00	$0.00

TITLE	CURRENT AND APPROVED	INCOMPLETE; NEEDS REVISION OR UPDATING	NEEDED
Ethnohistory			
Exhibit Plan			
Historic Furnishings Report and Plans (HFR)			Yes
Historic Structure Report			Yes
Inventory and Condition Assessment Program (ICAP)			
Social Impact Study			
Special History Study			
Traditional Use Study			
Other			

Natural Resource Program Area	Current Park Staffing (FTEs)	Workload (FTE)	Difference	
			FTE	%Staffed
Vegetation management				
Wildlife management				
Prescribed fire management				
Water quality management				
Air quality management				
Geologic management				
Paleontological management				
Grazing management				
Fence maintenance				
Disturbed area rehabilitation				
Pest and hazard management				
Environmental planning and compliance				
Collections/data management				
Science oversight				
Interpretation of natural resource issues				
Bison Management Plan				
Vegetation Management Plan				
Fire Management Plan				
Water Resource Management Plan (WRMP)				
Total				

Cultural Resource Program Area	Current Park Staffing (FTEs)	Workload (FTE)	Difference	
			FTE	%Staffed
Archeological resources				
Cultural resources				
Historic structures				
Ethonographic resources				
Museum collections				
Cultural resource libraries				
History				
Other activities				
Total				

CULTURAL RESOURCES	FY-2 Actual ($000)	FY-1 Actual ($000)	Current FY Actual ($000)
Park Base			
Cluster/Region			
WASO/National			
Fee Demonstration			
Other non-NPS agency			
Donations			
Other			
Total	$0.00	$0.00	$0.00

INTEGRATED NATURAL/CULTURAL RESOURCES	FY-2 Actual ($000)	FY-1 Actual ($000)	Current FY Actual ($000)
Park Base			
Cluster/Region			
WASO/National			
Fee Demonstration			
Other non-NPS agency			
Donations			
Other			
Total	$0.00	$0.00	$0.00

Status of Resource Program

Tallgrass Prairie is a relative new area with minimum staff and the operation is geared towards developing plans and strategies and interpreting the existing facilities. The GMP is in the final stages of development and will provide the guidance to RMP. Tallgrass Prairie is a public/private partnership that retains all but up to 180 acres in private ownership and the management of the lands outside the 180 acres will be done in a partnership with the National Park Trust, the current landowners.

At this time, the staff assigned to resource and cultural resource management is part of the time of the Chief, Resource Management and Visitor Protection, and some part-time help from the seasonals, which is directed primarily towards noxious weed control and inventory of vascular plants.

As the staff and funding increase, specific positions will be assigned to resource management and cultural resource management.

Current Resource Issues

Existing Special Uses

In March 1995, the NPT and Mr. Edward Bass of Fort Worth, Texas signed a 35-year grazing lease. The lease involves 10,734 acres (4,334 hectares) or over 98% of the preserve. The rent ($2 million) was pre-paid in advance, and provides for annual adjustments and the termination of all or part of the lease through a buy-back of the grazing rights. Implementation of any of the action alternatives would require the buy-back of at least portions of the current lease. The lease provides for annual burns and the use of an early intensive grazing regime on all but approximately 490 acres (198 hectares). This 490 acres (198 hectares) is bottomland along Fox Creek which was formerly cultivated. It is no longer cultivated annually and is now primarily planted to perennial brome pasture, with some areas in second growth native grasses.

When NPT purchased the property in 1994, the oil and gas development rights were retained in trust by Boatman's (now Bank of America) First National Bank of Kansas City for 35 years. Since that time, Bank of America has become the trustee and has leased the property for oil and gas exploration to Knighton Oil Company, Inc. There has been no oil exploration to date and gas production has been shut in. Knighton Oil Company, Inc. sold their exploration rights and operation to Chisholm Resources and Company in December, 1999.

There are approximately 43 acres (17.4 hectares) in the southern portion of the preserve near U.S. 50 that are not in the grazing lease. NPT leases these five parcels of land on an annual basis for agricultural (crop) use.

Rights-of-Way, Easements, and Agreements

There are a number of rights-of-way (ROWs) which exist in the preserve, including an overhead electrical transmission line, a buried high pressure gas line with adjacent telecommunications (fiber optics cable) line, sanitary sewer lines, and a small watershed district detention dam and pond. The ROW for the gas line, which transverses from east to west across the southern portion of the preserve, involves a 1,826 acre (737 hectares) ROW. A new agreement with Williams Communication has changed the right of way width to 66 feet, which reduces the acreage under the ROW. The City of Strong City has a permanent easement to operate the city sewage lagoon and has a state permit to discharge effluent from the treatment lagoon into the Cottonwood River via Fox Creek.

In addition, there are other ROWs that have legal documentation but have not been located. It is not known if they have been abandoned or transferred to another entity or are still in force. These include pipelines, telegraph and other forms of communication, highways, and railroads. Some date back to 1886.

The potential for future ROWs or reactivation of past easements or agreements is good. Recently (1998), a communication company requested a ROW for another buried fiber optics line adjacent to the high-pressure gas line. However, they decided on an alternate route around the preserve instead.

ROWs represent a major issue because of the potential impact on preserve resources, visitors, and future operations.

IV. Strategies for Resource Stewardship

Scientific Panels

ENHANCEMENT PANEL

Provide expert opinions on the following issues:

1. the potential biodiversity of the tallgrass prairie ecosystem in the Flint Hills and the preserve
2. the definition of high-quality range in the Flint Hills
3. how fire and grazing could be manipulated to increase biodiversity of the tallgrass prairie ecosystem
4. specific manage scenarios for the preserve that would enhance tallgrass prairie
5. inventory, monitoring and research needs
6. restoration of cultivated and non-native grasslands in the floodplain of Fox Creek and restoration of other impacted riparian areas within the boundaries of the preserve

Recommendations

- Make it a high priority to gather baseline information on the biological and related physical resources of the preserve. Develop monitoring schemes to detect trends over time and space, and to evaluate the effectiveness of the management schemes that are implemented.
- Create a heterogeneous, dynamic landscape by establishing burn units that are burned at different times with an average (but variable) fire return interval of three years, by restoring bison to the majority of the preserve, and by reducing stocking rates and switching to season-long cattle grazing in the remainder.
- Restore the majority of the floodplain to native prairie, as this is one of the rarest community types in the Flint Hills.
- Build no new ponds and promote no recreational fishing. Ponds are unnatural to the system and have impacted secondary streams throughout the preserve.

Recreational fishing normally involves the introduction of non-native fish that may enter and impact creeks downstream.

- Minimize development within and adjacent to the park. The size of the preserve is minimal for restoration of bison and fire management at a landscape scale. Developments adjacent to the preserve could impact fire management, create sources of feral animals and invasive plants, and obstruct the vista.

- Mine no gravel in the streams. Impacts include erosion, disturbance of aquatic habitat, and increased siltation.

- As springs are "hot spots" of diversity, NPS management should consider protecting those areas found to be species rich or to contain rare species from livestock.

- Hunting should remain an option as the natural predators have been extirpated. Overpopulation of white-tailed deer is a specific concern.

- Monitor and control exotic plants. Special attention should be placed on the state list of noxious weeks (e.g., musk thistle and bindweed) and taxa known to be or anticipated to be a problem in the area. (Sericea lespediza and Caucasian bluestem.)

SUSTAINABLE MANAGEMENT PANEL

Objectives

1. Translate the Enhancement Panel's published recommendations into an on-the-ground management strategy, including evaluations of feasibility, benefits, impacts, and economic aspects of the concepts.

2. Develop additional preliminary management alternatives for the GMP team to consider and evaluate the pros and cons of corresponding management actions according to key issues such as grazing regimes, fire management policies, and visitor use.

3. Draft an economic analysis for the various management options to meet the sustainability objective stated in the enabling legislation.

4. Focus on the future of the preserve and identify the conditions that the preserve is to achieve.

5. Develop self-maintenance concepts using prescribed fire and grazing as management tools.

AGREED POINTS

- The long-term management plan should promote native species diversity and provide for visitor education on the cultural significance and history of the area from the period of American Indian use through more than a century of ranch life.

- A combination of native grazing animals and livestock would be necessary for the promotion of biodiversity, as well as for the educational program.

- More grazing areas should be devoted to bison than cattle.

- A fire regime with a more natural fire interval would promote native species diversity and provide an educational and enjoyable experience for visitors.

- The ecology of the tallgrass prairie, the landscape at the time of American Indian use, and historic-through-contemporary cattle ranching should be all covered in a comprehensive interpretation program. Bison and ranching should be featured on the west side of the preserve, while the ranch buildings should be incorporated into the interpretation of historical ranching. An area of tallgrass prairie near the ranch buildings should be made available to visitors. The east side of the preserve should focus on contemporary ranching and visitor recreation.

- The group generally agreed that a visitor center should be located at the preserve's south end and not at the ranch headquarters. Factors in this recommendation include water problems, building size, visitor safety, visitor accessibility, and other concerns. A portion of rare bottomland prairie should be restored in the area now used for brome production.

V. Plan of Action

Tallgrass Prairie National Preserve is a highly complex and unique area of 10,894 acres that includes virgin tallgrass prairie, riparian areas that are wooded and diverse, rich bottomlands that have been plowed and put into non-native plants, other bottomlands that have been plowed in the past, stock ponds that have been put in for water sources for domestic animals and is also a water source for native species, developed and undeveloped springs, intermittent streams and seeps, and historic buildings and fences. Each brings it's own challenges as they relate to resource and cultural management.

Common to all of the land

- The preserve would be managed to maintain and enhance the tallgrass prairie within its boundaries. This would be achieved in part through the use of fire and historic and contemporary grazing regimes in differing arrangements that vary over time and location. As an example of such variation, a mixture of spring and fall burns could be applied within a large pasture, with season-long stocking rates adjusted according to the percentage of acres burned.
- Prescribed fire applications would make use of roads, fences, stream courses, topography, and burn frequencies to create a varied landscape, or vegetative mosaic, to help maintain and enhance the tallgrass prairie, and to encourage and manage the wide variety of native plant and animal life associated with the prairie.
- Riparian areas would be protected to prevent erosion and the further loss of vegetation. Some of the associated fields within the Fox Creek riparian area would be restored to the native vegetation that once grew here. This would provide an example of a rare bottomland prairie containing species common to deeper soils and wetter sites, and would allow for the expression of tallgrass species ranging in heights of six feet (1.83 meters) or more.
- State and federal threatened and endangered species and species of concern would be considered in all management actions to meet federal and state mandates to protect these species.
- Management activities related to noxious weeds, pesticide use, animal health, maintenance and installation of fences, water, and waste disposal would be consistent with applicable state laws.

- With the exception of agricultural crops that may be reintroduced to areas to recreate a historic scene, no alien, non-indigenous species would be introduced within riparian areas or areas of native prairie. Existing exotic species that would impact preserve resources in a negative manner and/or would spread rapidly would be removed or controlled where practical. Within already disturbed sites, species that are not native (for example, some agricultural plants) might be introduced for interpretation purposes or cultural landscape restoration purposes if the species could be easily controlled and they would not expand beyond a given area.
- In accordance with Section 1005(g)(3)(G) of the enabling legislation for the preserve, the Secretary shall honor each valid existing oil and gas lease for lands within the boundaries of the preserve (as described in Section 1004 (b)) that is in effect on the date of enactment of this act. The subsurface mineral owner would be encouraged to work cooperatively with the production lessee to minimize impacts such as erosion, vegetation loss, and soil compaction that are associated with oil and gas production.
- When the mineral (oil and gas) lease permanently expires and/or gas wells are plugged and abandoned, the areas would be rehabilitated and tallgrass prairie restored. Rehabilitation would include removing the visual signs of production such as aboveground pipe and wellheads, and eliminating the effects to vegetation caused by water disposal from the wells. Visual impacts associated with gas and oil operations would be minimized and mitigation measures would be implemented where impacts remain unavoidable.
- Systematic block inventories would be conducted throughout the preserve to identify the range of archeological and ethnographic resources present. Significant archeological and ethnographic sites would be preserved and protected, and public access to these sites would be controlled. Sensitive archeological and ethnographic sites requiring additional protection would not be accessible to visitors, and transportation routes would be directed away from them.
- Artifacts, archival material, natural history collections, and oral histories relating to and directly associated with the preserve would be collected, preserved, and managed for use in museum exhibits, interpretation programs, and public and scholarly research in accordance with an approved Scope of Collections Statement.
- A range of on-site interpretation and education programs would be available, focusing on the natural history of the tallgrass prairie, Flint Hills ranching legacy, and American Indian history and culture. These stories are represented by the interpretation themes of the preserve and would be developed further through the Comprehensive Interpretation Plan.
- New development would be minimal and designed to avoid intrusion into important views and cultural landscapes. Development of support facilities would be sufficient to meet visitor experience goals, and health and safety requirements.
- During preservation treatments, the necessary infrastructure, such as water, sewer, and mechanical and electrical systems would be upgraded, rehabilitated, and/or replaced to meet all applicable county, state, and federal codes and guidelines.
- Ethnographic resources would be identified and monitored. Specific resources may be made accessible to culturally affiliated tribes or traditionally associated groups by request. Any identified American Indian sacred sites would be protected, with access for sacred ceremonies allowed to appropriate Indian tribes.
- Grazing animals would be cattle and bison separated by adequate fencing.
- A Bison Management Plan would be developed with public participation that is consistent with laws, policies, and procedures applicable to the NPS. The plan would address such topics as initial herd size, size and location of the introduction area, bison ecology, and the distribution of surplus animals.
- In areas of higher visitor use, such as the historic ranch headquarters area, visitor movement and access would be controlled to ensure resource protection while accommodating high-density use; these controls may include limited improvements such as walkways, barriers, benches, and interpretive and informational signs.

- Using existing roads and roadbeds, a public transportation system, such as a shuttle, would provide transportation to various points within the preserve, interpretive tours, and access to the prairie.
- Encumbrances on the property such as existing special uses, including rights-of-way, easements, and agreements, would continue so long as they do not become detrimental to the resource and to visitor experiences. They may be eliminated if desirable and as opportunities present themselves.
- Access to all areas may be restricted during periods of extremely high fire danger. Restrictions on the use of fire and smoking may be required during portions of the year. Self-contained stoves may be required for backcountry use.
- A Vegetation Management Plan would be developed that would utilize current science and resource management knowledge to guide vegetative restoration within the preserve. After suitable public review and comment, this document would address specific goals and objectives for those vegetative restorations such as brome fields within the Fox Creek bottomlands, areas impacted by gas operations, erosion sites, and those areas subject to noxious weed control.

Preserve Wide

The following proposed management guidelines would apply to the entire preserve.

- Small plots would be used to demonstrate alternative prairie management practices for interpretation purposes. These areas might be cut for hay; they might be managed through a fire regime only, without grazing; or they might be removed from a fire regime over a long period of time. These areas would help demonstrate the effects of various management actions on the tallgrass prairie.
- Springs, seeps, and their associated streams would be provided additional protection if found to contain unique or rare native plant or animal species. Impacts by visitors, cattle, and bison would be minimized. These areas would be monitored and may be restored with vegetation; they may be stabilized; or they may have cattle, bison, or visitor access restrictions placed on them, depending on the level of additional protection required.
- Many spring boxes, dams, and stock ponds would be maintained and would continue their original use after an inventory, evaluation, and determination of operational value and historical significance. Criteria for this evaluation would include National Register of Historic Places criteria, flood control value, what plant and animal species are present, potential use in control of grazing patterns, and whether or not there is a connection to perennial springs (flowing all year). Some stock ponds found to be of low value based on this evaluation may be removed and, where feasible, the areas restored to prairie. Such restorations would allow spring hydrology to be restored.
- Some species, such as white-tailed deer, lack natural predators; if they become overpopulated they may threaten preserve resources. These species would be monitored, and if resource impacts are recorded, control actions (hunting or controlled reduction) may be implemented. A management plan would be prepared, and would involve public review and comment, prior to any control actions.
- Some existing features may be removed and non-essential uses may be terminated. Infrastructure development would be minimal to protect natural and cultural resources and cultural landscapes, and to maintain important views
- During preservation treatments, full consideration would be given to historic fabric, landscapes, adaptive use, and visitor needs and safety.
- No vehicle-accessible campgrounds would be provided in order to reduce impacts on the preserve's natural and cultural resources, and views.
- Existing roads that contribute to the historic character would be used for management purposes and for non-motorized access to all areas of the preserve in order to minimize the need for additional trail development.

Site specific standards would be developed for the evaluation, placement, and maintenance of roads within the preserve, in order to retain historic character, minimize erosion and the loss of prairie, and avoid intrusion into important views. Recognizing that some roads may be part of the historic landscape, they may be removed or relocated where necessary to protect important resources, historic character, or views.

Flint Hills Ranching Legacy Area

The boundary of this area would be largely determined by the landscape as it is viewed from primary points such as the ranch house, the barn, and the vista between the historic ranch headquarters area and the Lower Fox Creek School. Within this management area, existing fences (stone and wire), and topography would be used as the physical boundaries for implementation of management actions. This management area would serve as the primary focal point for interpreting the story of ranching in the Flint Hills region. The cultural resources would be the primary resource of concern here.

Protection of the cultural resources would be emphasized and sound range management practices would be employed. Effects of grazing, applied fire, and visitation would be monitored to ensure resource sustainability. Visitation to this area would be heavy, and would result in heavy use of the resources, particularly those in the ranch headquarters and schoolhouse areas.

- Historic breeds of domesticated livestock would be the predominant grazing animals in this area. Cattle operations would afford visitors an opportunity to observe ranching operations in all seasons. Historic grazing regimes and breeds would be used to interpret the historic ranching practices.
- The ranching character of the historic Z Bar/Spring Hill Ranch headquarters would be retained to the greatest extent possible. The ranch house, barn and associated outbuildings, and landscape features would be restored, rehabilitated, and/or preserved according to the recommendations made in the CLR and HRS. Preservation of cultural resources would be supplemented by interpretation so visitors would understand the broad history of ranching in the Flint Hills from the mid-19th century through the late 20th century. Some non-contributing buildings may be removed after the completion of the HRS and CLR and after proper consultation with appropriate agencies. Some structures, or portions of structures, may be managed as historically furnished interiors.
- The Lower Fox Creek School and its associated landscape features would be preserved according to recommendations made in the HRS and CLR, and their association with rural education of the late 19th and early 20th centuries would be interpreted.
- The Lantry Deer Park Place outbuildings located within the preserve boundary represent the evolution of ranch management from the mid 19th century through the late 20th century. The structural tile barn, stone chicken house, frame barn, and associated landscape features would be preserved according to recommendations made in the HRS and CLR. The structures may continue to be adaptively used. This area would not be actively interpreted onsite and would not become a major visitor site. Other significant historic structures and landscape features important to the interpretation of the preserve's cultural history would be identified and preserved.
- Historic structures and landscape features (such as fences, roads, trails, bridges, drainage structures, sheds, and barns) would continue their historic uses, or would be adapted for modern uses for interpretation and preserve operations, if such actions are not damaging to those resources. Some structures may be rehabilitated for other uses.
- Significant fencelines associated with historic agricultural areas would be restored and preserved. Historic crops may be planted to help interpret the agricultural and ranching history.
- Interpretation and education activities within this area would focus on those associated with ranch operations, such as livestock grazing or the demonstration of historic farming and ranching practices in the Flint Hills. Activities may include staff-guided tours of

historic buildings, self-guided activities such as walking the nature trail, and organized activities for school groups and bus tours. Some seasonally-oriented programming related to ranching activities may be presented here as well. Wayside exhibits might also be used to interpret these stories.

- Along Fox Creek, a remnant of the rare bottomland prairie community would be restored to provide examples of species extirpated from the area (species previously removed by plowing and the planting of non-native species), and for interpretation of this rare plant and animal community and the pre-agricultural prairie.

Day Use Area

This area would include the lands east of the Fox Creek bottomland. It would also include the agricultural areas adjacent to the east/west county road. This area would offer day use opportunities for visitors to experience and learn about the tallgrass prairie, its associated ranching history, and American Indian culture through a variety of visitor activities. Visitation to this area would be expected to be moderate to heavy, which has the potential to impact cultural resources, such as archeological sites and historic fencelines. While these resources would be protected as needed, and the prairie would be maintained in good condition, the focus of the area would be on providing opportunities for visitors to experience the preserve and explore its resources.

- Cattle would be the dominant grazing animals in this area. Grazing regimes, including placement of cattle and pasture use, would not interfere with the dispersed visitor use of this area.
- Significant archeological sites, historic structures, and landscape features would be documented, stabilized, and protected as needed.
- A range of non-motorized day use activities such as hiking, horseback riding, or fishing, would be permitted if impacts to natural and cultural resources could be managed and conflicts among users minimized. Some of these activities may be limited to guided group activities.
- The proximity to Strong City would allow flexibility for private partnerships and concessions to be developed. This flexibility could allow visitor related services to be developed outside the preserve.

Prairie Landscape Area

The emphasis in this area would be the management of the prairie through the use of both cattle and bison, while providing a variety of opportunities for the visitor to experience the prairie and prairie landscape. Opportunities for the visitor to experience quiet and solitude, the views, the relationship of earth and sky, wildlife, the multitude of flowering and other native plants, and the effects of various regimes of fire and grazing animals would be the focus. Bison would be an important element not only for their historic role within the tallgrass prairie ecosystem but also in meeting the visitor's expectations and thoughts about the prairie. Visitors would be required to spend more time and energy to engage in opportunities in this area, either by foot or on a guided tour by shuttle or bus.

- Historic and contemporary grazing regimes would allow for the interpretation of the continuum of ranching in the Flint Hills and may include historic breeds, and a variety of regimes such as season long and early intensive stocking.
- Bison (certified disease free and genetically pure) would be introduced into this area. Prior to this action, a Bison Management Plan would be completed, with public participation, which would provide a review of the current state of scientific and resource management knowledge related to bison management. Under the direction of this plan, long-term objectives and goals would be developed for bison management within the preserve. The location of the suggested bison area would be refined and possibly

adjusted. Actual numbers of animals for the initial introduction would be identified, and additional management concerns such as budget, personnel, and safety/health issues would be addressed. The preserve would begin with a small herd of bison, The Recommended Bison Reintroduction Area is believed to be the best location pending the development of a Bison Management Plan. The population would be managed to maintain effective social and behavioral interactions and dynamics. Visitors would be able to see bison in a tallgrass setting and to observe their effects on the prairie.

- A dual purpose handling facility and improved fencing would be developed for the bison and cattle operations. A handling facility for use by both cattle and bison would reduce construction costs and help reduce and manage impacts to the cultural, natural, and visual resources.
- Significant archeological sites, historic structures, and landscape features would be identified, documented, and evaluated; recommended treatments would complement the primary use in this area. Following documentation, those resources not chosen for stabilization and/or protection would be allowed to deteriorate. Most existing fences would remain to delineate pastures and provide flexibility for preserve operations; where practicable, rock fences would be rehabilitated as needed.
- Interpretation and education efforts would consist primarily of staff-conducted shuttle or bus tours of the prairie and non-personal services such as publications. Tours may result in moderate to heavy visitation in a localized tour corridor. Other interpretation and education efforts would be minimal in the backcountry portions of this area. Occasional staff-guided activities into the backcountry may be offered and waysides exhibits might be developed if they could be developed in such a way as to remain unobtrusive on the landscape.
- Limited cross-country hiking and horseback riding may be permitted if impacts to natural and cultural resources could be managed and visitor/livestock conflicts avoided.
- Limited overnight backcountry camping may be allowed to offer a high quality primitive experience on the prairie, if impacts to natural and cultural resources could be managed and visitor/livestock conflicts avoided.
- Visitor access to the prairie would use existing roads. Ranch roads would provide foot access when feasible, or access for tours when appropriate. No hiking trails would be developed. Hardened or improved stream crossings would be provided where necessary.
- All roads would be surveyed to determine their historical significance, condition, usefulness, and impact on the resources prior to a determination of their continued use or removal. Roads not necessary for management, foot and/or horse access, or interpretation would be removed and the areas rehabilitated. New roads would be developed only for access to and from the orientation areas or to the livestock handling facilities.

Visitor Information and Orientation Area

Primary visitor information and orientation would be offered in this management area, with a visitor center located near the junction of State Route 177 and U.S. 50, or in closer proximity to Strong City. This would provide the initial "first stop" for visitors, allowing them easy access to basic information about the preserve and nearby community resources and services, and enabling them to orient themselves and plan their visit. It would also serve as a primary staging area for the public transportation system and for basic education and interpretation efforts. This area would be expected to receive the greatest concentration of visitor use. In this management area, visitors would have little need to physically exert themselves or make a long time commitment in order to learn about the preserve.

- This management area would include visitor and administrative facilities such as offices, museum collections and archives storage, a maintenance area, parking areas, and a public transportation center.
- A multi-purpose visitor center would be located out of the floodplain and would take advantage of existing or proposed utilities. It would complement visitor services located in

and near Strong City and Cottonwood Falls. The exact location would be selected to minimize impact on the prairie, retain aesthetic views, and preserve natural and cultural resources.

- Development within the preserve would be located near the boundary; it would be minimal and the design would be sensitive to the cultural and natural environment. New development would maintain harmony and continuity with the special visual qualities of the landscape and with the natural and cultural features that create a sense of time and place unique to the preserve. If primary visitor facilities are located outside the preserve, limited and sensitive development would be allowed in this area to create an inspiring and efficient portal to the preserve.
- Interpretation and education efforts in this management area would focus on orientation, information, primary interpretive stories, and bookstore sales.

VI. Project Statements

PMIS #	Project Year	Title	Cost
		NATURAL RESOURCES	
1871	2001	Determine Invertebrate Assemblages as Bioindicators of Prairie Integrity	$55,000
1872	2000	Vegetation Monitoring Program	$15,000
1873	2003	Conduct Breeding Bird Census within Tallgrass Prairie	$15,000
1874	2000	Conduct Biological Inventory of Springs/Seeps	$50,000
25463	2000	Trim and Prune Hazardous Trees - Phase II - Ranch Headquarters Area	$10,000
35825	1999	Conduct VERP Analysis and Prepare Implementation Plan: Survey and Develop Protocol	$28,000
35846	2000	Acquire and Install Remote Weather Station	$12,000
35855	2000	Sponsor Resource Monitoring Strategy Workshop/Draft Monitoring Plan	$10,000
36029	2000	Exotic and noxious weed survey/assessment	$58,000
36195	2000	Complete Surveys to Determine Distribution/Status of Selected Small Mammal Populations	$49,000
36206	2001	Complete Fire History on Gallery Forest	$30,000
36216	2000	Prepare Restoration Plan for Floodplain Prairie and Brome Field	$30,000
37362	2003	Conduct an Assessment of Stock Ponds on Watershed Capacity	$173,000
37371	2000	Evaluate land use practices on Prairie Herpetofauna	$64,000
37455	2001	Collect Topeka Shiner distribution data/conduct habitat assessment	$17,000
37507	2000	Study effects of grazing on breeding grassland birds	$60,000
50950	2000	Conduct inventory of Springs	$9,910
52732	2001	Restore bottomlands - historic area and prairie area	$489,000
		Build Bison fence around Introduction Area and handling facilities @ $15,000/mile	$150,000
		Build handling facility for both bison and cattle	$750,000
		Cultural Resources	
173	1997	Identify, Inventory and Protect Archeological Resources	$20,000
174	1997	Stabilize and Preserve One Room Schoolhouse	$45,000

7696	1998	Condition Assessment of Historic Structures	$45,000
7926	2003	Install Water System to Provide Fire Suppression and Potable Water for Public	$1,334,000
24499	2000	Stabilize and Preserve Unsafe Stone Retaining Walls, Fences, Steps - Historic Area	$201,960
25142	2000	Replace Deteriorated and Unsafe Sewer System	$24,684
25394	2005	Replace Roofs on Historic Ranch House and Barn	$44,800
25443	2005	Install Intrusion/Fire Detection Systems - Historic House and Barn	$40,000
25767	2000	Rehab and Repair Trail and Roads	$20,000
36544	2000	Cultural Landscape Report, Part 2	$173,000
37728	2001	Historic American Building Survey (HABS) - Standards Documentation of Tallgrass Prairie National Preserve Cultural Sites	$153,026
38406	1999	Document Historic Structures	$150,000
38528	1999	Conservation and Photographic Reproduction of ca. 1895 Lantry Map and Ledger	$6,500
38556	1999	Improve Storage of Historic Objects and Documents	$5,000
38582	2000	Develop a collection Management Program	$10,000
51337	2000	Repoint historic outer buildings	$10,000
51349	2001	Repoint historic barn	$20,000
51351	2002	Repoint historic house	$10,000
51357	2001	Trim and prune hazardous trees - ranch headquarters area - phase III	$10,000
51370	2000	Reroof historic outer buildings	$10,000
51377	2000	Termite control - main house and outbuildings	$6,000
51381	2001	Termite control - barn and outbuildings	$8,000
51552	2000	Repair porch roof on historic main house	$15,000
51990	2000	Stabilize, Repair and Restore Unsafe Retaining Walls, Fences, Steps - Historic Area	$385,000

VII. Appendix

APPLICABLE LAWS, EXECUTIVE ORDERS, ETC.

The following is a partial list of laws, executive orders and presidential directives applicable to the areas administered by the NPS. They apply to those areas in the preserve that will be owned by the federal government, up to 180 acres, and can, through an agreement with the property owner, apply to other areas of the preserve.
The list is meant to inform and guide people, organizations, and other local, state, and federal agency decision-makers. It has been included in the GMP in response to questions regarding the NPS's long-range management of the preserve.

American Indian Religious Freedom Act of 1978
(PL 95-341; 92 Stat 469)

The act declared "the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express and exercise the traditional religious of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites."

Americans with Disabilities Act
The Americans with Disabilities Act (ADA) gives civil rights protections to individuals with disabilities that are like those provided to individuals on the basis of race, sex, national origin, and religion. It guarantees equal opportunity for individuals with disabilities in employment, public accommodations, transportation, State and local government services, and telecommunications.

Antiquities Act of 1906
(PL Chapter 3060, 34 Stat 225, 16 USC 431-433)
This act authorizes the President to declare national monuments to protect sites and objects; authorizes federal departments to grant permits for survey and excavation and for gathering of "objects of antiquity" and to enforce protection of archeological sites and objects under their jurisdiction; and requires that materials excavated be permanently preserved in public museums.

Archaeological Resources Protection Act of 1979
(PL 96-95, 93 Stat 721, 16 USC 470aa-ll)
This was enacted to prevent the illegal excavation and possession of archeological resources located on federal, other public, and Indian lands. In passing this act the Congress recognized that the only comparable statutory law, the 1906 Antiquities Act, was inadequate in terms of defining archeological resources and establishing appropriate penalty provisions. The act called for regulations to be promulgated jointly by the Secretaries of Interior, Agriculture, Defense, and the Chairman of the Board of the Tennessee Valley Authority.

Bald and Golden Eagles Protection Act
(PL Chapter 28, 54 Stat 250, 16 USC 668 et seq., as amended)
This statute prohibits taking, possession, and trade in bald and golden eagles. The act provides federal protection for bald and golden eagles; provides for civil or criminal penalties for violations and a reward for informers; authorizes cancellation of grazing, leases, licenses, permits, or other agreements for violations; and provides for the possession and transport of golden eagles for falconry, under certain conditions.

Clean Air Act
(PL Chapter 360, 69 Stat 322, 42 USC 7401 et seq.)
The main purpose of this act is to protect and enhance the nation's air quality to promote the public health and welfare. The act establishes specific programs that provide special protection for air resources and air quality related values (AQRVs) associated with NPS units. For example, sections 160-169 of the act establish a program to prevent significant deterioration (PSD) of air quality in clean air regions of the country. The purposes of the PSD program include the following: to protect resources that might be sensitive to pollutant concentrations lower than the established national standards and "to preserve, protect and enhance the air quality in national parks, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value." In section 169A of the act, Congress also established a national goal of remedying any existing and preventing any future human-made visibility impairment in mandatory class I areas.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund)
(PL 96-510, 94 Stat 2767, 42 USC 9601 et seq.)
This was enacted to regulate the cleanup of hazardous or toxic contaminants at closed or abandoned sites. A fund available to states was established for cleanup of these abandoned sites. Superfund monies come from taxes levied on designated chemical feedstocks. The government can recover cost of the cleanup and associated damages by suing the responsible parties. The act was reauthorized in 1986 under the Superfund Amendment Reauthorization Act (SARA). Section 120 of SARA specifies that CERCLA is applicable to federal facilities.

Controlled Substance Act
(PL 91-513, 84 Stat 1242, 21 USC 812)
This act establishes five schedules for controlled substances and places them into the appropriate schedule based on findings. The act defines controlled substances; establishes five "schedules," or list of controlled substances, based upon the potential for abuse and use for accepted medical treatments; and specific

substances to specific schedules. Substances listed as controlled are subject to federal regulatory control of their legal use.

Department of Transportation Act of 1996
(PL 89-670, 80 Stat 931)
This act stated in Sec 4(f) that the secretary of transportation "shall not approve any program or project which requires the use of any land from a public park, recreation area,...or historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, . . . or historic site resulting from such use."

Emergency Planning and Community Right-to-Know Act
(PL 99-499 Title III of SARA Sec. 300-330, 100 Stat 1725, 42 USC 1101)
This act set up procedures for (1) emergency planning, (2) emergency notification, (3) community right-to-know reporting on chemicals, and (4) emissions inventory. All federal agencies, including the DOI/NPS, are exempt from EPCRA. Nonetheless, DOI strongly encourages voluntary compliance with all portions of the law. EPCRA is designed to protect communities from hazardous chemicals by making sure that advance planning occurs for potential emergencies.

Endangered Species Act of 1973
(PL 93-205, 87 Stat 884, 7 USC 136, as amended)
This act requires federal agencies to ensure that their activities (authorized, funded, or carried out) will not jeopardize the existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species.

Farmland Protection Policy Act
(PL 97-98 Title XV, Sec. 1540, Stat 1341)
The purpose of the Act is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that Federal programs are administered in a manner that will be compatible with state, local government and private programs and policies protecting farmland.

Federal Insecticide, Fungicide, and Rodenticide Act of 1976
(PL 92-516, 86 Stat 973, 7 USC 136 et seq.)
This act requires that all pesticides be registered, and that pesticides be used in accordance with the registration. The act restricts the use of certain pesticides. Some pesticides are regulated as toxic pollutants under the Clean Water Act and the Safe Drinking Water Act.

Federal Land Policy and Management Act
(PL 99-198, 99 Stat 1354, 43 USC 1732)
This act constitutes the organic legislation for the Bureau of Land Management (BLM). The act requires that BLM consider the resource management programs of other federal agencies on adjacent lands in conducting their resource planning. The act also contains a land exchange authority under which the Secretary may exchange federal lands or interests in lands outside NPS units for nonfederal lands or interest within NPS units. This method of exchange can be used to eliminate mineral interests in NPS units.

Federal Tort Claims Act
(PL chapter 753 Title IV, 60 Stat 842, 28 USC 1346b, 2671-80)
This act provides the basis for the NPS to be held liable for failure or negligence with respect to visitor protection. Most interpretations of tort law make the landowner responsible for taking reasonable care to avert harm to visitors.

Federal Water Pollution Control Act (Clean Water Act of 1972)
(PL 92-500, PL 100-433, 86 Stat 816, USC 9 sec. 1251 et seq., as amended, 33 USC sec. 1251-1356, and 1987 Federal Water Quality Act)
This act firmly establishes federal regulation of the nation's waters, and contains provisions designed to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The act requires that the states set and enforce water quality standards to meet Environmental Protection Agency (EPA) minimum guidelines. It establishes effluent limitations for point sources of pollution, requires a permit for point source discharge of pollutants (through the National Pollution Discharge Elimination System), a permit for discharge of dredged or fill material, and authorizes a "National Wetlands Inventory." Recent changes brought about by the 1987 Federal Water Quality Act places greater emphasis on toxicological-based criteria and in-site biological monitoring.

Federal Water Power Act of 1920
(PL Chapter 285, 41 Stat 1063, 16 USC 823a, as amended, 16 USC 797, 41 Stat 1353)
The 1921 amendments to the Federal Water Power Act prescribed that what is now the Federal Energy Regulatory Commission (FERC) could not grant authorization, permit, lease, or license for any facilities (dams, reservoirs, power houses, etc.) for the development, storage, and transmission of water and/or power within a national park without specific authority from Congress. Exceptions are where a park's enabling legislation or other statute specifically provides for such activities, as in those parks established in conjunction with reclamation projects (Lake Mead, Glen Canyon, etc.)

Fish and Wildlife Coordination Act
(PL 85-624, 72 Stat 563, 16 USC 661 et seq.)
This act requires federal agencies to consult with the U.S. Fish and Wildlife Service, or National Marine Fisheries Service, and with parallel state agencies, whenever water resource development plans result in alteration of a body of water. The Secretary of the Interior is authorized to assist and cooperate with federal agencies to "provide that wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs."

Flood Disaster Protection Act of 1973
(PL 93-234, 87 Stat 975, 12 USC 24, 1709-1)
This act substantially increased the coverage limits of the national flood insurance program. It also required state and local communities, as a condition of future federal assistance, to participate in the program and to adopt adequate flood plain ordinances and enforcement mechanisms. Property owners acquiring or improving land or facilities in identified flood hazard areas, and who are being assisted by federal programs (including by federally regulated or insured institution) are required to purchase flood insurance.

Food Security Act of 1985
(PL 99-198, 99 Stat 1354, 7 USC 1281)
Commonly known as the "Swampbuster Act," this legislation restricts a number of federal benefits to farmers who, after December 23, 1985, produce agricultural commodities on certain "converted wetland." Knowledge of the provisions of this law is useful for management of agricultural special use permits and in protecting park resources from impacts associated with agriculture on inholdings and adjacent lands.

Forest and Rangeland Renewable Resources Planning Act
(PL 95-307, 92 Stat 353, 16 USC 1600 et seq.)
This act established the land and resource management planning system for the U.S. Forest Service and also expressed Congressional insistence on inventory and monitoring of natural resources on all public lands in the U.S.

General Authorities Act of 1970
(PL 91-383 sec 1, 84 Stat 825, 16 USC 1a et seq.)
This act affirmed that all national park areas, including historic sites, recreation areas, etc., while acknowledged to be "distinct in character," were "united through their inter-related purposes and resources into one national park system as cumulative expressions of a single national heritage." The purpose of this act was "to include all such areas in the system and to clarify the authorities applicable to the system." The act made it clear that the NPS Organic Act and other protective mandates applied equally to all units of the system. Further amendments stated that NPS management of park units should not be conducted "in derogation of the purposes and values for which these various areas have been established.

General Authorities Act of 1976
(PL 94-458, 90 Stat 1939)
This act allowed the Secretary of the Interior "to withhold from disclosure to the public, information relating to the location of sites or objects listed on the National Register whenever he determines that the disclosure of specific information would create a risk of destruction or harm to such sites or objects.

Historic Sites, Buildings and Antiquities Act of 1935
(PL Chapter 593, 49 Stat 666, 16 USC 461 et seq.)
This act established a national policy to preserve for public use historic sites, buildings, and objects of significance for the inspiration and benefit of the people of the United States. The act also directed the Secretary of the Interior to carry out wide-ranging programs in the field of history and placed with the Secretary responsibility for national leadership in the field of historic preservation. Another provision established the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments (since renamed

the National Park System Advisory Board). The act was the basis for the National Historic and Natural Landmarks Programs and the Historic American Building Survey.

Lacey Act
(PL Chapter 553, 37 Stat 187, 18 USC 42,44, as amended)
This act was one of the first wildlife laws, passed in 1900 to outlaw interstate traffic in birds and other animals illegally killed in their state of origin. The Lacey Act was amended several times and its coverage expanded to include wildlife taken in violation of foreign law as well as state law. The Lacey Act Amendments of 1981 provide more effective enforcement of state, federal, Indian tribal, and foreign conservation laws protecting fish, wildlife, and rare plants. The act gives authority, in addition to CFR regulations, to park superintendents and the U.S. Attorney to prosecute criminal or civil violations involving the taking of wildlife, fish, and rare plants in park units.

Land and Water Conservation Fund Act of 1965
(PL 88-578, 78 Stat 897, 16 USC 460d et seq.)
This act established the Land and Water Conservation Fund for planning and purchase of outdoor recreation areas and facilities. Appropriations from the fund may be made by the Congress for allocation to (1) the states, on a matching basis, for planning, acquisition of land and water areas and for construction of outdoor recreation facilities; and (2) the federal agencies, including the National Park Service, for use in acquiring lands needed for outdoor recreation. Legislation in 1987 extended the Fund through 2015.

Migratory Bird Conservation Act
(PL Chapter 257, 45 Stat 1222, 16 USC 715 et seq.)
The purpose of this act is to aid in the restoration of scarce or near extinct species and to regulate the introduction of American or foreign birds or other animals.

Migratory Bird Treaty Act of 1918
(PL 186, 40 Stat 755)
This act prohibits taking, possession, and trade of migratory birds, except as permitted by regulations released by the Secretary of Agriculture. The act provides search, arrest, and seizure authority to authorized USDA employees; provides for civil and criminal penalties for violation; allows states to impose more restrictive measures to protect migratory birds; and allows for taking for scientific and propagating purposes.

Mineral Leasing Act for Acquired Lands of 1947
(PL Chapter 681, 61 Stat 681, 30 USC 351 et seq.)
This act authorized the disposal of leasable minerals (including, among others, coal, oil, and gas) from federal lands that were acquired by the U.S., i.e., lands that were nonfederal prior to U.S. obtaining title.

Mineral Leasing Act of 1920
(30 USC 181 et seq., as amended)
These laws provide authority for disposal of leasable minerals on "public domain" federal lands. Both this act and the Mineral Leasing Act for Acquired Lands prohibit leasing of federally owned minerals in units of the National Park System except where specifically authorized by law.

Mineral Materials Disposal Act of 1947
(30 USC 601 et seq.)
This act prohibits the sale of "salable" or "common variety" minerals in units of the National Park System. Examples include petrified wood, sand, stone, grave, pumice, pumicite, cinders, limestone, and clay.

Mining in the National Parks Act of 1976
(PL 94-429, 90 Stat 1342, 16 USC 1901 et seq.)
This act closed all units of the National Park System to the location of new mining claims. The act directs the Secretary to determine the validity of unpatented mining claims and to make recommendations regarding claim acquisition, and reinforces the Secretary's authority to acquire and regulate patented and unpatented mining claims in park units.

Mining Law of 1872
(30 USC 21 et seq.)
This law allows citizens to enter open public lands and stake a claim to lands, which contain a valuable mineral. Minerals subject to claim location are referred to as "locatable" or "hardrock" minerals and include gold, silver, copper, lead, zinc, cinnabar, tin, talc, salt, feldspar, antimony, bismuth, molybdenum, uranium,

and various gemstones. Such minerals are made available to parties for development through the issuance of unpatented and patented mining claims.

Museum Properties Management Act of 1955
(PL Chapter 259, 69 Stat 242, 16 USC 18f)
This act authorizes the Secretary of the Interior through the National Park Service to preserve and maintain objects of national historical and archeological significance and to establish and maintain museums in connection with this activity.

National Environmental Policy Act of 1969 (NEPA)
(PL 91-190, 42 USC 4321 et seq., 83 Stat 852, 42 USC 4332, as amended)
NEPA is the basic national charter for environmental protection. It contains an "action-forcing" provision to ensure that federal agencies act according to the letter and spirit of the law. Among its provisions, this act declares that is the policy of the federal government to "preserve important historic, cultural, and natural aspects of out national heritage." It directs that all practicable means should be used to improve federal functions so that the nation may" ...attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences..." Title I of NEPA requires that federal agencies plan and carry out their activities..." so as to protect and enhance the quality of the environment. Such activities shall include those directed to controlling pollution and enhancing the environment." To enact this policy, NEPA requires an interdisciplinary study of the impacts associated with federal programs.

National Flood Insurance Act of 1968
(PL 90-448 Title XIII, 82 Stat 572, 42 USC 4001 et seq., as amended)
This act established a national flood insurance program, encouraged state and local governments to institute planning and land use programs to help reduce damage in flood risk areas, and assured that federal actions, including licensing and permitting, would be coordinated with these efforts.

Native American Graves Protection and Repatriation Act of 1990
(PL 101-601, 104 Stat 3049)
This act assigns ownership or control of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are excavated or discovered on federal lands or tribal lands after passage of the act to lineal descendants or affiliated Indian tribes or Native Hawaiian organizations; establishes criminal penalties for trafficking in human remains or cultural objects; requires federal agencies and museums that receive federal funding to inventory Native American human remains and associated funerary objects in their possession or control and identify their cultural and geographical affiliations within five years, and prepare summaries of information about Native American unassociated funerary objects, sacred objects, or objects of cultural patrimony. This is to provide for repatriation of such items when lineal descendants, Indian tribes, or Native Hawaiian organizations request it.

National Historic Preservation Act of 1966
(PL 89-665, 80 Stat 915; as amended by PL 91-243, PL 93-54, PL 94-422, PL 94-458, PL 96-199, PL 96-244, PL 96-515, PL 98-483, PL 99-514, PL 100-127, and PL 102-575)
The law established a national policy of historic preservation, including the encouragement of preservation on the state and private levels; authorized the Secretary of the Interior to expand and maintain a National Register of Historic Places including properties of state and local as well as national significance; authorized matching federal grants to the states and the National Trust for Historic Preservation for surveys and planning and for acquiring and developing National Register properties; established the Advisory Council on Historic Preservation; required federal agencies to consider the effects of their undertakings on National Register properties and provide the Advisory Council opportunities to comment (Section 106). Amended in 1976 (PL 94-422) to expand Section 106 to properties eligible for as well as listed on the National Register. Amended in 1980 (PL 96-515) to incorporate E.O. 11593 requirements (see below), to give national historic landmarks extra protection in federal project planning, and to permit federal agencies to lease historic properties and apply the proceeds to any National Register properties under their administration. Amended in 1992 to, among other things, redefine federal undertakings, address "anticipatory demolition," and emphasize the interests and involvement of Native Americans and Native Hawaiians.

National Park Service Organic Act of 1916
(PL Chapter 408, 39 Stat 535 et seq., 16 USC 1)
Through this act, Congress established the National Park Service and mandated that it "shall promote and regulate the use of the federal areas known as national parks, monuments, and reservations...by such means and measures as conform to the fundamental purpose of the said parks, monuments, and

reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The Organic Act authorizes the Secretary to promulgate rules and regulations necessary for management of the parks. This authority, among others, provides the basis for the regulations in 36 CFR 1.

Occupational Safety and Health Act of 1970
(PL 91-596, 84 Stat 1590, 5 USC 5108)
This act established national safety and health standards for worker environments, including standards for occupational exposure limits to toxic and/or hazardous agents. The act created the Occupational Safety and Health Administration (OSHA). OSHA is responsible for training requirements for employees working with hazardous material spills and for hazard communication rulings. Rulings set requirements for (1) the development of material safety data sheets (MSDS) by manufacturers and importers, (2) the acquisition of MSDS by product users, and (3) training of employees who work with hazardous materials.

Preservation of Historical and Archeological Data Act of 1974
(PL 93-291, 74 Stat 220, 16 USC 469)
This act amended the Reservoir Salvage Act of 1960, and provides for preservation of significant scientific, prehistoric, or archeological data (including relics and specimens) that might be lost or destroyed as a result of (1) the construction of dams, reservoirs, and attendant facilities, or (2) any alteration of the terrain caused as a result of any federal construction project or federally licensed project, activity, or program.

Public Buildings Cooperative Use Act of 1976
(PL 94-541, 90 Stat 2505)
This act required the General Services Administration to acquire space for federal agencies in buildings of architectural or cultural significance where feasible. It also amended the Architectural Barriers Act of August 12, 1968, relating to the accessibility of certain buildings to the physically handicapped.

Redwood National Park Act
(PL 95-250, 92 Stat 163, as amended, 1978)
This act amended NPS authorities legislation to direct that within the National Park System, "authorization of activities shall be construed and the protection, management, administration...shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established..." With this additional amendment to NPS law, the NPS is mandated to afford the highest standard of protection and care to park resources; no decision can compromise these resource values, except where specifically authorized by law.

Resource Conservation and Recovery Act (RCRA)
(PL Chapter 425, 30 Stat 1148, 42 USC 6901)
This act governs the generation, transportation, treatment, storage, and disposal of current and future actively produced hazardous waste, solid waste, and underground storage tanks. Federal agencies are subject to federal, state, and local requirements. The act authorizes a comprehensive program that regulates hazardous waste from generation to ultimate disposal (cradle to grave). Subtitle D of RCRA (Solid Waste) is regulated through state programs. Regulations for hazardous waste management are in the Federal Register starting at 40 CFR 260. They are immediately preceded by certain solid waste regulations.

Safe Drinking Water Act
(PL 93-523, 88 Stat 1660, 42 USC 300f et seq.)
This act directs EPA to publish and enforce regulations on maximum allowable contaminant levels in drinking water. The act requires EPA to issue regulations establishing national primary drinking water standards; primary enforcement responsibilities lie with the states. The act also protects underground sources of drinking water; primary enforcement responsibilities again lie with the states. Federal agencies having jurisdiction over public water systems must comply with all requirements to the same extent as any nongovernmental entity.

Surface Resources Use Act of 1955
(30 USC 601 et seq.)
This act prohibits persons from using the surface of unpatented claims for anything but mining. This act provides that claimants of patented mining claims may use the surface of the claim only for purposes related to mineral activity. Claimants may occupy and use resources on the claim only for prospecting and mining. Claimants also may not sell the surface resources (timber, sand, gravel, etc.) from an unpatented claim.

Toxic Substances Control Act
(PL 94-469, 90 Stat 2003, 15 USC 2601 et seq.)
This act regulates existing and new chemical substances and primarily applies to manufactures, distributors, processors, and importers of chemicals. There are requirements for stock inventory, pre-manufacture notification, testing reporting, and record keeping. Polychlorinated biphenyls (PCBs) are regulated under this legislation. PCBs whose concentration is greater than 50ppm are regulated. Equipment containing regulated PCB must be properly labeled, inspected, and surveyed.

Water Resources Planning Act and Water Resource Council's Principles and Standards Act of 1965
(PL 89-80, 42 USC 1962 et seq., 44 FR 723977, Principles and Standards)
This act states a national policy "to encourage the conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by the federal government, states, localities, and private enterprises..." Water Resources Council (WRC) principles and standards for planning water and related land resource uses are revised to achieve national economic development and environmental quality objectives.

Watershed Protection and Flood Prevention Act
(PL 92-419, 16 USC 1001, 68 Stat 666, as amended, 86 Stat 667)
This act authorizes the Secretary of the Interior to cooperate with state and local governments, including soil and water conservation districts and flood control districts, in planning and analyzing trends in flood protection and watershed conservation activities and facilities.

EXECUTIVE ORDERS

Exotic Organism
(E.O. 11987)
This executive order requires federal agencies to "restrict the introduction of exotic species into the natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration..." and "into any natural ecosystem of the United States," and to "encourage the States, local governments, and private citizens to prevent the introduction of exotic into natural ecosystems of the United States" unless the Secretaries of Agriculture or Interior "find that such introduction or exportation will not have an adverse effect on natural ecosystems."

Federal Compliance with Pollution Control Standards
(E.O. 12088)
This order established procedures and responsibilities to ensure that all necessary actions are taken to prevent, control, and abate environmental pollution with respect to federal facilities and activities.

Floodplain Management of 1977
(E.O. 11988, 42 FR 26951, 3 CFR 121 (Supp 177))
The objective of this order is to avoid, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modifications of floodplains, and to avoid direct and indirect support of floodplain development whenever there is a practicable alternative.

Indian Sacred Sites
(E.O. 13007, 61 FR 26771)
This order instructs all federal land management agencies, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites.

Protection and Enhancement of the Cultural Environment
(E.O. 11593, 36 FR 8921)
This order instructed all federal agencies to support the preservation of cultural properties; directed them to identify and nominate to the National Register cultural properties under their jurisdiction and to "exercise caution . . . to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered."
Protection and Enhancement of Environmental Quality
(E.O. 11514, as amended, 1970, E.O. 11991, 35 FR 4247; 1977, 42 FR 26967)
This order declares that "the Federal Government shall provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans and programs so as to meet environmental goals."

Protection of Wetlands
(E.O. 11990, 1977 42 FR 26961, 3 CFR 121 (Supp 177), 42 USC 4321)
This executive order furthers the purposes of the National Environmental Policy Act by directing federal agencies to "...avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative...." The directive applies both to "major federal actions significantly affecting the quality of the human environment" and to all other actions.

VIII. Addenda: Action/Implementation Plans

Meeting in September, 1999 recommendations

1. The preserve's private landowner and the NPS maintain a strong partnership to accomplish the mission of the preserve.

    - Management agreement to define roles
    - Maintain communications between private landowner and park
    - Need a complete understanding of conditions of purchase and possible implications
      Mineral Rights
      Grazing Lease
    - Application of NPS regulations, policies and guidelines on NPS lands
      Lease buy out and modification
    - Need draft time frames
    - Need to map and determine existing conditions and easements
    - Health of partnership may depend on funding
    - The partnership is a model that might be duplicated elsewhere

2. The preserve's management team maintains effective working relationships with preserve neighbors, adjacent communities, and other partners in order to identify and cooperate on issues of mutual interest.

    - Communication between private landowner and park regarding external threats both ways
    - Need to identify resources in common
    - Have avoided "spilling over" of issues over boundaries so far
    - Identify how neighbors want to be involved
    - Lack of land use planning; need to know what does exist
      e.g. water conservation district
    - Need to know applicable state regulations

- NPS has experience with "gateway" communities and adjacent development
- Need to identify financial partners (local to national)
- Address concessions incidental business permits, etc.
- Recognize educational role of NPS; balance with economic benefits to gateway communities

3. The preserve has adequate information available for making management decisions

- Need to identify critical health/safety issues
- Lack of centralized/published scientific data
- Have we digested the available information?
- Interpretation of existing information into management implications
- Park needs the capability to do the interpretation of the above
- Understand management recommendations have financial implications to NPS
- Remember those cultural resources, not just natural resources
- Lack of Kansas's rare species information so we can target management towards state T & E species
- Need to monitor and quantify visitor impacts on cultural resources
- Need to continue archeological investigations
- Need to make decisions in incomplete information/data
- Need an existing conditions survey
- Early monitoring to make comparisons on changing treatments
- Recognize indicators are present, showing problems with water and range quality
- All activities should maintain a healthy condition
- Need to understand range management in balance with healthy tallgrass ecosystem
- NPT is ready to consider changes to the grazing lease - NPS?
- Need to recognize that land management should not be homogenous

4. Management activities and policies at the preserve lead to the enhancement of the tallgrass prairie ecosystem and a greater understanding of its associated processes.

- Need to define enhancement

- What is the period of significance?
- Integrate with the interpretive plan (starting to be developed)
- Understand the different grazing/fire regimes and interactions
- Implication of Flint Hills region on the park (exotic species)
- Interaction of past and present human activity
- Need to define high quality; reference conditions/model

5. Heterogeneous disturbance regimes are an integral part of management activities at the preserve.

- Don't create unfixable problems
- Scale, sensitivity from landscape to field
- Consider impacts of management practices on viewsheds
- No way to recreate all previous conditions
  Need to prioritize
- How many time periods can be represented?

6. The preserve's seeps, springs and streams are in good ecological condition and support a healthy and diverse aquatic community

- Possible conflicts, more data needed
- Define restoration (goal and period of significance)
- Are all stock tanks necessary?
- Need to inventory seeps and springs
- Possible sacrifice of ecological integrity with cultural resource focus - a balance

7. Open and unobstructed vies, an integral part of the prairie experience are maintained.

- What will be the impact of bison fencing and other fencing?
- Subject to external influences
- Sounds of factor (overflights) and also smells
- We need to purchase easements?
- Smell-shed?
- Has viewshed been defined? "Boundary"
- Impact of roads
  Opportunities for interpretation (visual examples of change)

8. Resources are managed to interpret the legacy of human interaction in the Flint Hills.

- Define/need to clarify the period of significance
- Need to work with the interpretive plan
- How to tease out affect of different human activities on natural processes
- This is the national park site: NPS role in showing the positive and negative aspects of people on the land
- The mix of natural and cultural resources preserved
  Regionally, with national significance
- Opportunity to show the ecological, economic and spiritual impact people have had on the environment
- Interaction of people and landscape
- Keep in mind differences by management areas
- Integrate the two story lines (local and national)
- Consider the historical uses of the valley (Fox Creek Floodplain)
- Do we need a Chase County lexicon?
- How are current disturbances handles?
- A local and national audience
- Don't forget the American Indian and prehistoric human effects

9. Natural and cultural resources are managed to preserve the character-defining features of the Flint Hills cultural landscape.

- Define character-defining features and contributing features; include perspectives (dumps, etc.)
- Be careful and clear when using terms
  (clarify cultural landscape)
- Semantics between cultural and natural resource management disciplines
- Immediate structural needs and vegetative features and lack of fire protection

10. The preserve's historic records and objects are properly managed and preserved

- Be more explicit to include natural history collections, surveys, record archives
- Where do we keep this stuff?
- Need to deal with current collections, furnishings

- Lacks proper environment/security for preservation
- Structures - fire/security concerns
- Possible conflict between archives/protection and utilization for telling the story
- Many items require further research
- Opportunities for oral histories (may be lost within next 10-20 years)

11. Education and interpretation efforts extend beyond the boundary of the preserve in order to reach a wide audience.

- What are the important messages, differentiating between audiences
- How far are the (personal) off-site boundaries?
- How to take advantage of newer emerging technologies (the WEB)
- Opportunities for interns/graduate students to work at TAPR
- We have a lot of information from research; we are limited on getting it out
- What does it mean to go beyond the boundaries---prairie landscapes
- What has been done to date to publicize TAPR?

Visitors are transported to and through the preserve using a variety of transportation modes, in order to protect the landscape and provide for high-quality visitor experiences

- How much of the prairie doe we need to provide access to? What is the impact of these modes?
  Natural resources
  Viewshed
- What kind of visitation can we expect?
- Details like fee structure; what does the visitor want? Will pay? Time to spend?
- Development locations (visitor center)
- Limiting impact on resources while maximizing accessibility
- Potential conflict between grazers and visitors

United States Department of the Interior

NATIONAL PARK SERVICE
Homestead National Monument of America
Route 3, Box 47
Beatrice, Nebraska 68310-9416

IN REPLY REFER TO:

January 25, 2000

N22(HOME)

Memorandum

To: Regional Director, Midwest Region
Attn: Steve Cinnamon, Acting Chief, Natural Resources, MWR

From: Superintendent, Homestead National Monument of America

Subject: Resource Management Plan

Attached, please find our Resource Management Plan for your signature. This document reflects the resent completion of our new General Management Plan. As per the latest directives on revising Resource Management Plans, we have not attached the RMP database listing of project statements. If you have any questions, please call Bev Albrecht or me at 402-223-3514.

Mark Engler

Attachment